MARCH 2 • 2015 EDITION

Horbes

TECH POWER BROKER SHERVIN PISHEVAR

"WE CAN HAVE IT UP AND RUNNING IN FIVE YEARS."

RETIREMENT PLAYBOOK

AMERICA'S TAX PARADISE

IRA MAGIC: REALLOCATE NOW

> BEST PLACES TO LIVE EASY

CAP GAINS TAX DODGE

FIDELITY VOICE:
REVVING UP
YOUR RETIREMENT

ALL ABOARD THE HYPERLOOP!

NOW HAS THREE GROUPS SPRINTING TO TURN IT INTO REALITY.
WELCOME TO THE NEW SPACE RACE.

IT IS NOT THE CRITIC WHO COUNTS:

THE CREDIT BELONGS
TO THE MAN WHO IS
ACTUALLY IN THE ARENA,

WHO STRIVES VALIANTLY;

WHO ERRS, WHO COMES SHORT AGAIN AND AGAIN;

WHO KNOWS
GREAT ENTHUSIASMS;

WHO SPENDS HIMSELF IN A WORTHY CAUSE;

WHO AT THE BEST KNOWS IN THE END

THE TRIUMPH OF HIGH ACHIEVEMENT,

AND WHO AT THE WORST,

IF HE FAILS, AT LEAST FAILS WHILE DARING GREATLY.





DARE GREATLY













Forbes

ON THE COVER

68 | ALL ABOARD THE HYPERLOOP! Exclusive: Elon Musk's dream of high-speed tube travel now has three groups sprinting to turn it into reality. Welcome to the new space race. BY BRUCE UPBIN









COVER PHOTOGRAPH BY JAMEL TOPPIN FOR FORBES



You never actually own a Patek Philippe.

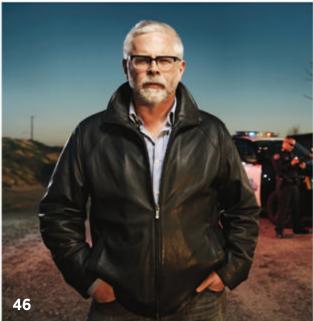
You merely take care of it for the next generation.





Nautilus Ref. 5712/1A Tel: (1) 212 218 1240 patek.com







11 | FACT & COMMENT // STEVE FORBES

Will Europe drag down the world?

LEADERBOARD

16 | EXPAT'S CHOICE

Taxes, health care, climate, culture: Where are the best places to retire abroad?

21 | HE, ROBOT

Japan's Yoshiyuki Sankai and his billion-dollar prosthetics.

22 | PERMANENT PRESS

The demise of the printed book has (so far, at least) been greatly exaggerated.

24 | BOTTLE ROYALE

Which celebrity booze should you drink?

26 | NETSCAPE NAVIGATOR

Web pioneer Jim Clark is a thrillionaire on the high seas.

28 | HOLY ROLLERS

Easy Rider, starring Popes Benedict and Francis.

30 | CONVERSATION

Actavis' drug lord; readers condemn adultery site Ashley Madison.

THOUGHT LEADERS

32 | INNOVATION RULES // RICH KARLGAARDLate bloomers in peril.

34 | CURRENT EVENTS // PAUL JOHNSON Obama: bad but lucky.

36 | **THE APOTHECARY** // **AVIK ROY** An economy revived by the GOP.

STRATEGIES

40 | SAFETY IN NUMBERS

With Ace Hardware's distinctive jingle and neighborly service, members of its national co-op are taking on the big boxes by sticking together.

BY CLARE O'CONNOR

42 | THRIVING ON FUMES

By creating a better tool for spotting gas leaks from oilfields and pipelines, tiny Rebellion Photonics got the jump on a global market no one else could see.

BY CHRISTOPHER HELMAN

TECHNOLOGY

46 | SERVER AND PROTECT

PredPol turned an earthquake-prediction model and years of policing data into a map of crime that's about to take place.

BY ELLEN HUET

48 | THE BACKUP PLAN

Austin McChord makes big money selling peace of mind to small businesses hoping to avoid the catastrophe of data loss.

BY STEVEN BERTONI

ENTREPRENEURS

52 | GARBAGE INTO GOLD

Trex had the benefits of a monopoly—along with the arrogance that almost killed it. Ron Kaplan saved the synthetic-decking pioneer by treating it like a startup.

BY BRIAN SOLOMON

BECAUSE SOMEDAY

I want to drink beer brewed by monks. With the monks.



Alert: Fidelity Meeting





SAVE

Every someday needs a planst. Get a clear view of yours when you move your old 401(k).

- One-on-one guidance focused on your goals, not ours
- A consolidated view of how your investments are really doing
- The expertise to help you choose from a broad range of investment options

Move your old 401(k) to a Fidelity Rollover IRA, and get control over your own personal someday.



Fidelity.com/rollover 800.FIDELITY

Keep in mind that investing involves risk. The value of your investment will fluctuate over time and you may gain or lose money.

Be sure to consider all your available options and the applicable fees and features of each before moving your retirement assets. Fidelity Brokerage Services LLC, Member NYSE, SIPC. © 2015 FMR LLC. All rights reserved. 709195.3.0



96 FORBES MARCH 2, 2015

INVESTING

56 | MUNIFICENT RETURNS

William Heyman gave up a high-profile Wall Street career to become one of the gray men of insurance.

Travelers shareholders couldn't be happier.

BY NATHAN VARDI

60 | PORTFOLIO STRATEGY // KEN FISHER

Tech's sneaky market dividend.

62 | SMALL STOCKS // JIM OBERWEIS

Down but not out small caps.

64 | FIXED-INCOME WATCH // RICHARD LEHMANN

Why you should prefer preferreds.

FEATURES

76 | BRAIN BOOM

Advances in genetics and clinical science could lead to a flood of new treatments for depression, Alzheimer's and even schizophrenia, rebooting one of the biggest markets in the drug business.

BY MATTHEW HERPER

RETIREMENT PLAYBOOK

84 | YOUR BIG FAT IRA

Save thousands a year by using one of our five asset allocation cocktails.

BY WILLIAM BALDWIN

Brand Voice BY FIDELITY

Are You On Track For The Retirement You Want? 88

90 | TREASURE ISLAND

If you want your capital gains taxes to magically disappear, Puerto Rico has a deal for you.

BY PHILLIP DEMUTH AND LAUREN GENSLER

96 | UNRETIREMENT

The Social Security and tax laws hold hidden traps and rewards for the growing army of well-off folks who just keep on working.

BY KELLY PHILLIPS ERB

100 | TAKEOVER TAX DODGE

Is an unwanted capital gain staring you in the face? Turn it into a Pomona charitable gift annuity.

BY WILLIAM BALDWIN

104 | THE CROSS-POLLINATOR

Raised Catholic in the Philippines, Angelica Berrie now runs a charity that gives 40% of its money to Jewish causes, including unconventional ones, such as helping gay and transgender Israelis.

BY ASHLEA EBELING

LIFE

108 | A NEW PLACE IN THE SUN

With the opening of the Belle Mont Farm resort and a bold plan for expansion, can St. Kitts become another St. Barts?

BY HANNAH SELIGSON

112 | THOUGHTS

On newspapers.

BECAUSE SOMEDAY

Every day will be a personal day.



products are distributed by Fidelity Insurance Agency, Inc.

Alert: Fidelity Meeting





Reminder: Today

SAVE

Every someday needs a plansm.

Put some certainty in your retirement lifestyle with a guaranteed stream of income.

One simple investment gives you cash flow for as long as you want—or as long as you live. Call to talk with a Fidelity representative about your retirement plan.



Investing in a variable annuity involves risk of loss—investment returns, contract value, and for variable income annuities, payment amount is not guaranteed and will fluctuate. A contract's financial guarantees are solely the responsibility of and are subject to the claims-paying ability of the issuing insurance company. Before investing, consider the investment objectives, risks, charges, and expenses of the annuity and its investment options. Call or write to Fidelity or visit Fidelity.com for a free prospectus or, if available, a summary prospectus containing this information. Read it carefully.

Fixed income annuities available at Fidelity are issued by third-party insurance companies, which are not affiliated with any Fidelity Investments company. These

Keep in mind that investing involves risk. The value of your investment will fluctuate over time and you may gain or lose money. Fidelity Brokerage Services LLC, Member NYSE, SIPC. © 2015 FMR LLC. All rights reserved. 712138.2.0

Steve Forbes

CHIEF PRODUCT OFFICER Lewis D'Vorkin

FORRES MAGAZINE

EDITOR

Randall Lane

EXECUTIVE EDITOR

Michael Noer

ART & DESIGN DIRECTOR Robert Mansfield

FORBES DIGITAL

VP, INVESTING EDITOR Matt Schifrin

MANAGING EDITORS

Dan Bigman - Business, Bruce Upbin - Technology

SENIOR VP, PRODUCT DEVELOPMENT AND VIDEO Andrea Spiegel

EXECUTIVE DIRECTOR, DIGITAL PROGRAMMING STRATEGY Coates Bateman

ASSISTANT MANAGING EDITORS

Kerry A. Dolan, Luisa Kroll - Wealth

Frederick E. Allen - LEADERSHIP

Loren Feldman - ENTREPRENEURS

Tim W. Ferguson FORBES ASIA

Janet Novack WASHINGTON

Michael K. Ozanian SPORTSMONEY

Mark Decker, John Dobosz, Deborah Markson-Katz DEPARTMENT HEADS Avik Roy OPINIONS

Jessica Bohrer EDITORIAL COUNSEL

BUSINESS

Mark Howard CHIEF REVENUE OFFICER

Tom Davis CHIEF MARKETING OFFICER

Charles Yardley PUBLISHER & MANAGING DIRECTOR FORBES EUROPE Nina La France SENIOR VP, CONSUMER MARKETING & BUSINESS DEVELOPMENT

Jack Laschever PRESIDENT, FORBES CONFERENCES

Michael Dugan CHIEF TECHNOLOGY OFFICER

Elaine Fry SENIOR VP, M&D, CONTINUUM

FORRES MEDIA

Michael S. Perlis PRESIDENT & CEO

Michael Federle CHIEF OPERATING OFFICER Tom Callahan CHIEF FINANCIAL OFFICER

Will Adamopoulos CEO/ASIA FORBES MEDIA

PRESIDENT & PUBLISHER FORBES ASIA

Rich Karlgaard PUBLISHER

Moira Forbes PRESIDENT, FORBESWOMAN

MariaRosa Cartolano GENERAL COUNSEL

Margy Loftus SENIOR VP. HUMAN RESOURCES Mia Carbonell SENIOR VP, CORPORATE COMMUNICATIONS

FOUNDED IN 1917

B.C. Forbes, Editor-in-Chief (1917-54) Malcolm S. Forbes, Editor-in-Chief (1954-90) James W. Michaels, Editor (1961-99) William Baldwin, Editor (1999-2010)

MARCH 2, 2015 — VOLUME 195 NUMBER 3

FORBES (ISSN 0015 6914) is published semi-monthly, except monthly in January, February, April, July, August and October, by Forbes Media Ltc, 499 Washington Blvd., Jersey City, NI 07310. Periodicals postage paid at Jersey City, NI 07302 and at additional mailing offices. Canadian Agreement No. 40054649. Return undeliverable Canadian addresses to APC Postal Logistics. Ltc, 1/40 E. Union Medievarble Canadian addresses to APC Postal Logistics. Ltc, 1/40 E. Union Medievarble Canadian addresses to APC Postal Logistics. Ltc, 1/40 E. Union Medievarble Canadian addresses to APC Postal Logistics. Ltc, 1/40 E. Union STAT, Harbaru, A. 1859-0-971.

CONTACT INFORMATION

For Subscriptions: visit www.forbesmagazine.com; write Forbes Subscriber Service, P.O. Box 5471, Harlan, IA 51593-0971; or call 1-515-284-0963. Prices: U.S.A., one year 559.95. Canada, one year C59.95 (includes GST). We may make a portion of our mailing list available to reputable firms. If you prefer that we not include your name, please write Forbes subscriber Service. For Back Issues: visit www.forbesmagazine.com; e-mail getbackissues@forbes.com; or call 1-22-557-414.

For Article Reprints or Permission to use Forbes content including text, photos, flustrations, jopos, and video: visit www.forbesreprints.com; call PARS International at 1-212-221-9959; e-mail Inttp://www.forbes.com/reprints; or e-mail permissions@forbes.com. Permission to copy or republish articles can also be obtained through the Copyright Clearance Center www.copyright.com. Use of Forbes content without the express permission of Forbes or the copyright owner is expressly prohib

Copyright © 2015 Forbes Media LLC. All rights reserved. Title is protected through a trademark registered with the U.S. Patent & Trademark Office. Printed in the U.S.A.

FORRES

IN BRIEF

Journalists Can't Live In Fantasyland

BY LEWIS D'VORKIN

Fresh out of college I started my journalism career ripping stories off an Associated Press wire machine. The slot man, a Brit who ate onion sandwiches for lunch, reedited each one. Then a teletype operator retransmitted them to our audience. Four years later, as a copy editor, I had a colleague who would gulp down tallboys with his lunch on stressful news days. For the first half of my professional life I was caught up in a 100-yearold world of linear journalism, characters and all.

The linear journalistic way of life continues to this day. Social media will eventually bring it to an end. Our incentive-based contributor network forced the dramatic change FORBES

Magazine

investing

Brand Voice

Forbes

needed in a fragmented media world. Now we're solidifying a new workflow. I call it the Stargate newsroom. In one of my sci-fi favorites, an Egyptologist (played by James Spader) deciphers and aligns asterisms on a circular stone device to open a transport gate to another world. Our version opens the newsroom to a universe of digital monetization. The idea is

to align stories with advertising, audience segments, content creators and platforms.

More and more, content must work for the business. That requires editors and sales and marketing people to work together. None of that means less editorial independence. Editors and business types have always formed alliances. Most of them were denied in the name of newsroom integrity. It's important to acknowledge the partnerships, extend and deepen them.

As this chart shows, the goal is to lock in place the right elements within each ring (Spader did it to open a wormhole). In this case we did it for Fidelity, a BrandVoice partner creating native ad content. We do the same for editorial content.

Journalists who think salespeople alone can solve publishing's new complexities remain stuck in a linear fantasyland. As their careers fade away, there will be little solace in an onion sandwich or can of beer.

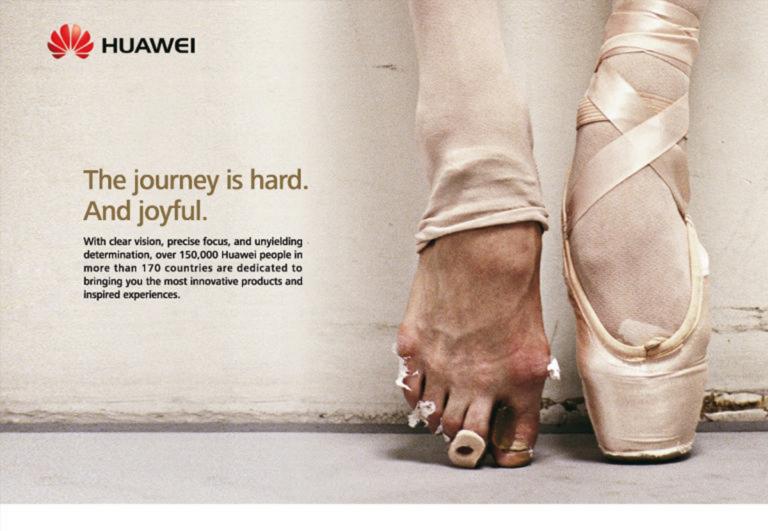


Mutual of America celebrates our country's proud heritage by helping Americans plan for a financially secure future.

MUTUAL OF AMERICA Your Retirement Company

Visit mutualofamerica.com or call us at 1-866-954-4321

Mutual of America® and Mutual of America Your Retirement Company® are registered service marks of Mutual of America Life Insurance Company, a registered Broker/Dealer. 320 Park Avenue, New York, NY 10022-6839.





THE WORLD'S FIRST CORE SWITCH THAT SO QUICKLY ADAPTS TO YOUR CHANGING NEEDS

Huawei Agile Switch S12700. More flexibility. Constantly evolving.

FACT & COMMENT — STEVE FORBES

"With all thy getting, get understanding"

WILL EUROPE DRAG DOWN THE WORLD?

BY STEVE FORBES, EDITOR-IN-CHIEF

WHILE GREECE is dominating the headlines, two other recent pieces of news underscore why the EU is in a serious economic and political crisis that could have devastating consequences for the U.S. and the rest of the world.

One event is well known. The European Central Bank announced that it will embark on a gargantuan bout of quantitative easing to pull the continent's stagnant economies out of their slump. The ECB is repeating the mis-

takes of the Federal Reserve and the Bank of Japan. It will be buying government securities (though, theoretically, the central banks of particular countries will bear the risk) to boost bank reserves and suppress interest rates. In a normal world banks would then boost their lending, taking this "high-powered money" and "multiplying" it. Once upon a time one euro of new reserves would end up creating €8 to €10 in new loans. Not now.

The rate of interest is the price a borrower pays for "renting" the money. Price controls always harm and distort markets. Suppressing interest rates has seriously distorted credit markets around the world, making it more difficult for new, small and medium-size businesses to get adequate credit at reasonable terms. Most households face the same situation.

Now we come to the lesser-known story: No sooner had the ECB embraced the Fed's failed policies (it's no coincidence that as the Fed wound down and ended QE, job creation in the U.S. improved) than the news came that the ECB would tighten capital requirements on European banks. Even institutions that meet regulatory capital levels today will be urged to beef up their capital cushions.

The ECB's cluelessness is breathtaking. How does a bank increase its capital cushion? By selling new equity, cutting dividends—and making fewer loans. Regulators are obsessed with gauging a bank's "risk-adjusted assets." By the perverted lights of bank overseers, a loan to Portugal is less risky than a loan to Apple. Politically



unconnected businesses, i.e., most of the private sector, are shafted.

Most of the reserves created by this new version of quantitative easing will stay parked at the ECB. Worse, the ECB gives Europe's politicians an excuse not to make the domestic restructurings that are needed to spark real growth, such as truly curbing bloated public sectors, slashing onerous tax rates and liberalizing labor markets.

Europe's troubled economies will continue to stagnate. As the elections in Greece demonstrate, these troubles are leading to ugly political repercussions. France's xenophobic, fascistic National Front has gained immense new support. Radicals are set to dominate Spain's elections later this year. May elections in Britain could set in motion a train of events leading to the Sceptred Isle's withdrawal from the EU.

A collapse of the EU and the euro would be disastrous, putting the world on a chaotic course not seen since the 1930s.

Feckless Obama Endangers Us All

In the 1950s C. Northcote Parkinson, an author and British naval historian, noticed something rather odd when he was researching what had happened to Britain's navy after WWI. Once hostilities ended the navy was sharply downsized. Yet the bureaucracy running the navy *expanded* as the navy diminished. Parkinson hit on a truism: The size of an organization is not related to the actual work with which it is tasked.

Parkinson's law is at work today in our own Defense Department. Defense analyst Mackenzie Eaglen observed in a recent *Wall Street Journal* piece that "since 2009 the Pentagon's civilian workforce has grown by about 7% ... while active-duty military personnel have

been cut by roughly 8%. At the same time, dozens of military-equipment and weapons programs have been canceled." The deteriorating global situation makes this trend especially foolish and dangerous. Military chiefs, though well aware they're subordinate to civilian officials, are extremely worried and are oh-so-delicately letting their concerns be known.

Even a Republican Congress will find it very difficult to force the President to devote more resources to beefing up our combat capabilities, but it has a duty to do so. A growing number of Democrats are waking up to the gravity of Obama's bizarre and feckless behavior: The contrast between the reactions of Jordan's King Abdullah to ISIS' recent barbaric execution of a Jordanian pilot and Barack Obama's to its beheading of an American journalist last summer (after briefly deploring the death, our Commander-in-Chief promptly went off to play five hours of golf) is embarrassing. Events are tragically reinforcing the need for Congress to act as Ukraine, the Middle East and Nigeria continue to deteriorate and Islamic terrorism spreads.

At a recent hearing of the Senate Armed Services Committee Senator John McCain (R–Ariz.) asked Obama's Defense Secretary nominee, Ashton Carter, if the Administration had a strategy for combating and defeating ISIS and, if it did, what that strategy was. The poor man floundered. Clearly, the answer was one everyone already knew: Obama has no plan at all.

And the whole world knows it.

Baseless Bashing Of E-Cigs

Superstitions are alive and well. Not the kind athletes and other performers are known to indulge in, but big ones, like the belief in witches centuries ago, that affect all of us. One example: the weird war that health officials continue to wage against electronic cigarettes. E-cigs have been a godsend to people who wish to give up smoking or avoid taking up the habit in the first place. These devices involve no smoke, only a vapor, but give one the pleasure of nicotine without wrecking the lungs.

Smoking among teenagers is at the lowest level since authorities began surveying people back in 1975. Not coincidentally, e-cig usage among teenagers has grown enormously. But instead of being hailed as the most effective antismoking tool ever, ecigs have been pilloried as the devil's device to hook the unwary to tobacco and for posing hideous health threats to users. The latest example is a report entitled "A Community Health Threat" from the California Department of Public Health, which apocalyptically attacks e-cigs and calls for drastic action to curb their use.

It turns out this report is scientific garbage: It twists facts, quotes scientific studies out of context and is laced with outright whoppers. Health expert Sally Satel succinctly and thoroughly demolishes this egregious example of junk science in a piece on

Forbes.com. "It is stunning that a public agency entrusted with the health of the population of California would promote such a one-sided, scientifically impoverished document."

Alas, California isn't an outlier in these baseless assaults. Other health officials who know better indulge the current hysteria. Numerous cities and states are imposing cigarette-like restrictions/bans on these life-saving devices. And politicians are pushing for punitive taxes on them.

The new surgeon general, Dr. Vivek Murthy, has sensibly noted that there's a "desperate need of clarity" on the subject of electronic cigarettes. If a fact-based, nonhysterical approach were taken, all would be well. But don't count on anything like that happening. The fanatical fervor of antismoking crusaders won't be stopped by objective science. The reason? E-cigs too closely resemble the real thing-which is like waving the proverbial red cape in front of a bull. But there's also another factor at work: an intolerant, puritanical mind-set that is offended because e-cigs make abstaining from or giving up cigarettes too easy. Forsaking smoking should involve pain, not pleasure!

Instead of focusing on sensible guidelines to ensure the safe and sound manufacturing of electronic cigarettes, antismoking jihadists indulge in what might be called a scorchedearth approach. All tobacco products are regarded as equally bad—a scientific falsehood—and anything resembling cigarettes, even when no tar or smoke is involved, must be quashed.

Restaurants: Go, Consider, Stop

Edible enlightenment from our eatery experts and colleagues Richard Nalley, Monie Begley, Randall Lane and Chef Jeff Lamperti, as well as brothers Bob, Kip and Tim.

Casa Lever

390 Park Ave., at 53rd St. (Tel.: 212-888-2700) Although often noisy, this place is very cool in its design and décor. Some dishes are excellent, but the kitchen needs a kick, as there's less love going on these days. Favorites: the calamari special paired with squash and chilies and the spicy arrabbiata spaghetti. Don't pass on the profiteroles or millefoglie; both are scrumptious.

Omar's

21 West 9th St. (Tel.: 212-677-5242)

This restaurant/supper club with its well-thoughtout menu is a welcome addition to the West Village. Salads, tuna tartare and Serrano ham make for tasty starters. The gambas al ajillo (garlic shrimp with Serrano ham), organic chicken and Chilean sea bass are first-rate. Rich ice cream between chocolate chip cookies will put a smile on your face.

Han Dynasty

90 Third Ave., near 12th St. (Tel.: 212-390-8685)
A storefront restaurant that's the far-above-expectation spot you'd like to keep as your own secret. Dishes vary in cooking style, with heat scale (can be adjusted to your preference) indicated. Even the mild offerings, like the wonderful Dan Dan noodles, have some sneaky burn to them. A must: the lingeringly aromatic cumin-style lamb.

Saving People Money Since 1936

... that's before there were photocopiers.

GEICO has been serving up great car insurance and fantastic customer service for more than 75 years. Get a quote and see how much you could save today.

geico.com | 1-800-947-AUTO | Local office

GEICO.





Brokerage Products: Not FDIC Insured • No Bank Guarantee • May Lose Value

There are eligibility requirements to work with a dedicated Financial Consultant.

Wealth management refers to products and services available through the operating subsidiaries of The Charles Schwab Corporation of which there are important differences including, but not limited to, the type of advice and assistance provided, fees charged, and the rights and obligations of the parties. It is important to understand the differences when determining which products and/or services to select.

The Charles Schwab Corporation provides a full range of brokerage, banking and financial advisory services through its operating subsidiaries. Its broker-dealer subsidiary, Charles Schwab & Co., Inc. (member SIPC), offers investment services and products, including Schwab brokerage accounts. Its banking subsidiary, Charles Schwab Bank (member FDIC and an Equal Housing Lender), provides deposit and lending services and products. ©2015 The Charles Schwab Corporation. All rights reserved. (0614-3466) ADP80835-00

LeaderBoard March 2, 2015



Leader Board

Florida Loses The Retirement Monopoly

AS RETIREMENT GOES GLOBAL, finding the perfect paradise requires comparison shopping. We've identified the 20 best based on cost of living (including taxes), medical care, climate, cultural attractions, crime, ease of return to the U.S. and hospitality to U.S. retirees.

CANADA







Beauty at reasonable cost outside big cities. Popular places include the scenic, ferry-accessible Sunshine Coast on Strait of Georgia. But it's tough for retirees to get year-round residency.

FRANCE







Food and health care big draws. High-tax nation offers breaks for foreign retirees. Better values found way outside Paris, such as Bordeaux or Lyon, near Alps.

BELIZE





Paradise of barrier reef fishing, boating, beach. Retirees courted with tax breaks. Popular spot: Ambergris Caye. Miami just two hours away by plane. English is official language.

PORTUGAL







Closest western European country to U.S. and cheapest, with benefits for foreign retirees. Expat hot spots include Algarve region on the Atlantic Coast, just south of Lisbon.

MEXICO





Warm climate, low costs and friendliness. Proximity to the U.S. makes using Medicare possible. San Miguel de Allende, Lake Chapala appealing. Just stay away from border towns.

NICARAGUA





gem. Short flight to U.S.



Unstable past shed, now leveraging natural beauty. Economic incentives for retirees. Colonial city of Granada, on Lake Nicaragua near the Pacific Ocean, is a real

PANAMA







Florida-like experience at steep discount. Tax breaks and discounts for retirees. Health care top-rate and cheap. Among favored sites: highlands town of Boquette. Quick hop back to U.S.







Maybe world's greatest retirement value play. Beautiful terrain, beaches and, offshore, Galápagos Islands. Expats like mountain town of Cuenca, with pleasant climate year-round.

COLOMBIA





Onetime hotbed of violent drug traffickers now has inviting retirement aura sporting good weather and scenery, low costs. Medellín particular draw for its European flavor.

COSTA RICA







Political stability and bicoastal beauty long a lure for U.S. retirees. Only \$1,000 in monthly income needed for permission to settle. Central Valley appealing. Three-hour plane ride back to States.







Wide range of agreeable climates at a reasonable cost. No local tax on foreign retirement income. Expats inhabit beach cities of La Serena and Vina del Mar. But long trip back to U.S.



URUGUAY







Four seasons but little snow, with gorgeous Atlantic beaches. Most foreign income not taxed. But Montevideo, popular with expats, is closer to South Pole than to New York.



IRELAND







Almost extension of U.S., except prettier. Popular venues include Dingle and Ballybunion on Atlantic Ocean. Cheap quick flights back to U.S.

KEY

CULTURAL APPEAL









EASY TO GET BACK TO U.S.



EASY TO GET RESIDENCY



GET BY WITH ENGLISH ONLY



CROATIA







Beautiful scenery and climate on Adriatic Sea. Inviting retirement venues include the Istria peninsula and walled medieval waterfront city of Dubrovnik. But no direct flights to U.S.









Solid, cheap health care, warm tropical climate and low living costs. Northern town of Chiang Mai draws buzz. Political tensions avoid expats. But trip back to States can take full day.

ITALY







Good climate, great food, affordable health care. Cost of living reasonable if big cities avoided for places like scenic Marche and Abruzzo regions. Government policy favors residency visas.



MALAYSIA







Hot, humid climate offset by cheap living, terrific outdoor venues and mix of cultures. English widely spoken. George Town, on Straits of Malacca, very livable. But 19-hour flight back to U.S.

THE PHILIPPINES







include elevated, cooler Manila suburb of Tagaytay. Nonstop flights to U.S. average 15 hours.

SPAIN





A bit like Florida but cheaper if inland from beautiful coasts. Terrific culture. Possibilities: near Costa del Sol along Mediterranean and Orange Blossom Coast near Barcelona.



AUSTRALIA

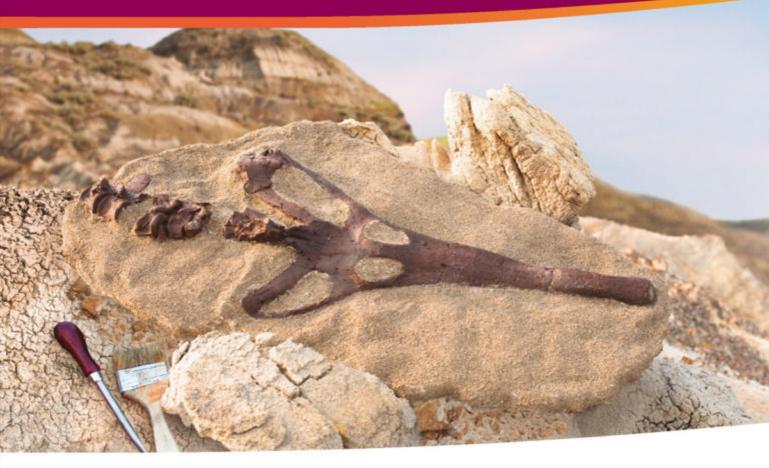






Warm Down Under climate with beaches, low crime. Melbourne, Adelaide, Brisbane among expat centers. Steep financial requirements for retirees and $14\frac{1}{2}$ hour plane ride back to States.

For people with a higher risk of stroke due to Atrial Fibrillation (AFib) not caused by a heart valve problem



ELIQUIS® (apixaban) is a prescription medicine used to reduce the risk of stroke and blood clots in people who have atrial fibrillation, a type of irregular heartbeat, not caused by a heart valve problem.

IMPORTANT SAFETY INFORMATION:

- Do not stop taking ELIQUIS for atrial fibrillation without talking to the doctor who prescribed it for you. Stopping ELIQUIS increases your risk of having a stroke. ELIQUIS may need to be stopped, prior to surgery or a medical or dental procedure. Your doctor will tell you when you should stop taking ELIQUIS and when you may start taking it again. If you have to stop taking ELIQUIS, your doctor may prescribe another medicine to help prevent a blood clot from forming.
- ELIQUIS can cause bleeding, which can be serious, and rarely may lead to death.
- You may have a higher risk of bleeding if you take ELIQUIS and take other medicines that increase your risk of bleeding, such as aspirin, NSAIDs, warfarin (COUMADIN®), heparin, SSRIs or SNRIs, and other blood thinners. Tell your doctor about all medicines, vitamins and supplements you take. While taking ELIQUIS, you may bruise more easily and it may take longer than usual for any bleeding to stop.

- Get medical help right away if you have any of these signs or symptoms of bleeding:
 - unexpected bleeding, or bleeding that lasts a long time, such as unusual bleeding from the gums; nosebleeds that happen often, or menstrual or vaginal bleeding that is heavier than normal
 - bleeding that is severe or you cannot control
 - red, pink, or brown urine; red or black stools (looks like tar)
 - coughing up or vomiting blood or vomit that looks like coffee grounds
 - unexpected pain, swelling, or joint pain; headaches, feeling dizzy or weak
- ELIQUIS is not for patients with artificial heart valves.
- Spinal or epidural blood clots (hematoma). People who take ELIQUIS, and have medicine injected into their spinal and epidural area, or have a spinal puncture have a risk of forming a blood clot that can cause long-term or permanent loss of the ability to move (paralysis).

I was taking warfarin. But ELIQUIS was a better find.

I TAKE ELIQUIS® (apixaban) FOR 3 GOOD REASONS:

- **1** ELIQUIS reduced the risk of stroke better than warfarin.
- **2** ELIQUIS had less major bleeding than warfarin.
- **3** Unlike warfarin, there's no routine blood testing.

ELIQUIS and other blood thinners increase the risk of bleeding which can be serious, and rarely may lead to death.

Ask your doctor if ELIQUIS is right for you.

This risk is higher if, an epidural catheter is placed in your back to give you certain medicine, you take NSAIDs or blood thinners, you have a history of difficult or repeated epidural or spinal punctures. Tell your doctor right away if you have tingling, numbness, or muscle weakness, especially in your legs and feet.

- Before you take ELIQUIS, tell your doctor if you have: kidney or liver problems, any other medical condition, or ever had bleeding problems. Tell your doctor if you are pregnant or breastfeeding, or plan to become pregnant or breastfeed.
- Do not take ELIQUIS if you currently have certain types of abnormal bleeding or have had a serious allergic reaction to ELIQUIS. A reaction to ELIQUIS can cause hives, rash, itching, and possibly trouble breathing. Get medical help right away if you have sudden chest pain or chest tightness, have sudden swelling of your face or tongue, have trouble breathing, wheezing, or feeling dizzy or faint.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.





IMPORTANT FACTS about ELIQUIS® (apixaban) tablets



The information below does not take the place of talking with your healthcare professional. Only your healthcare professional knows the specifics of your condition and how ELIQUIS may fit into your overall therapy. Talk to your healthcare professional if you have any questions about ELIQUIS (pronounced ELL eh kwiss).

What is the most important information I should know about ELIQUIS (apixaban)?

For people taking ELIQUIS for atrial fibrillation: Do not stop taking ELIQUIS without talking to the doctor who prescribed it for you. Stopping ELIQUIS increases your risk of having a stroke. ELIQUIS may need to be stopped, prior to surgery or a medical or dental procedure. Your doctor will tell you when you should stop taking ELIQUIS and when you may start taking it again. If you have to stop taking ELIQUIS, your doctor may prescribe another medicine to help prevent a blood clot from forming.

ELIQUIS can cause bleeding which can be serious, and rarely may lead to death. This is because ELIQUIS is a blood thinner medicine that reduces blood clotting.

You may have a higher risk of bleeding if you take ELIQUIS and take other medicines that increase your risk of bleeding, such as aspirin, nonsteroidal anti-inflammatory drugs (called NSAIDs), warfarin (COUMADIN®), heparin, selective serotonin reuptake inhibitors (SSRIs) or serotonin norepinephrine reuptake inhibitors (SNRIs), and other medicines to help prevent or treat blood clots.

Tell your doctor if you take any of these medicines. Ask your doctor or pharmacist if you are not sure if your medicine is one listed above.

While taking ELIQUIS:

- you may bruise more easily
- it may take longer than usual for any bleeding to stop

Call your doctor or get medical help right away if you have any of these signs or symptoms of bleeding when taking ELIQUIS:

- unexpected bleeding, or bleeding that lasts a long time, such as:
 - unusual bleeding from the gums
 - nosebleeds that happen often
 - menstrual bleeding or vaginal bleeding that is heavier than normal
- bleeding that is severe or you cannot control
- red, pink, or brown urine
- red or black stools (looks like tar)
- · cough up blood or blood clots
- vomit blood or your vomit looks like coffee grounds
- · unexpected pain, swelling, or joint pain
- headaches, feeling dizzy or weak

ELIQUIS is not for patients with artificial heart valves.

Spinal or epidural blood clots (hematoma). People who take a blood thinner medicine (anticoagulant) like ELIQUIS, and have medicine injected into their spinal and epidural area, or have a spinal puncture have a risk of

forming a blood clot that can cause long-term or permanent loss of the ability to move (paralysis). Your risk of developing a spinal or epidural blood clot is higher if:

- a thin tube called an epidural catheter is placed in your back to give you certain medicine
- you take NSAIDs or a medicine to prevent blood from clotting
- you have a history of difficult or repeated epidural or spinal punctures
- you have a history of problems with your spine or have had surgery on your spine

If you take ELIQUIS (apixaban) and receive spinal anesthesia or have a spinal puncture, your doctor should watch you closely for symptoms of spinal or epidural blood clots or bleeding. Tell your doctor right away if you have tingling, numbness, or muscle weakness, especially in your legs and feet.

What is ELIQUIS?

ELIQUIS is a prescription medicine used to:

- reduce the risk of stroke and blood clots in people who have atrial fibrillation.
- reduce the risk of forming a blood clot in the legs and lungs of people who have just had hip or knee replacement surgery.
- treat blood clots in the veins of your legs (deep vein thrombosis) or lungs (pulmonary embolism), and reduce the risk of them occurring again.

It is not known if ELIQUIS is safe and effective in children.

Who should not take ELIQUIS? Do not take ELIQUIS if you:

- currently have certain types of abnormal bleeding
- have had a serious allergic reaction to ELIQUIS. Ask your doctor if you are not sure

What should I tell my doctor before taking ELIQUIS?

Before you take ELIQUIS, tell your doctor if

- have kidney or liver problems
- · have any other medical condition
- · have ever had bleeding problems
- are pregnant or plan to become pregnant. It is not known if ELIQUIS will harm your unborn baby
- are breastfeeding or plan to breastfeed. It is not known if ELIQUIS passes into your breast milk. You and your doctor should decide if you will take ELIQUIS or breastfeed. You should not do both

Tell all of your doctors and dentists that you are taking ELIQUIS. They should talk to the doctor who prescribed ELIQUIS for you, before you have **any** surgery, medical or dental procedure.

Tell your doctor about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Some of your other medicines may affect the way ELIQUIS (apixaban) works. Certain medicines may increase your risk of bleeding or stroke when taken with ELIQUIS.

How should I take ELIQUIS?

Take ELIQUIS exactly as prescribed by your doctor. Take ELIQUIS twice every day with or without food, and do not change your dose or stop taking it unless your doctor tells you to. If you miss a dose of ELIQUIS, take it as soon as you remember, and do not take more than one dose at the same time. Do not run out of ELIQUIS. Refill your prescription before you run out. When leaving the hospital following hip or knee replacement, be sure that you will have ELIQUIS available to avoid missing any doses. If you are taking ELIQUIS for atrial fibrillation, stopping ELIQUIS may increase your risk of having a stroke.

What are the possible side effects of ELIQUIS?

- See "What is the most important information I should know about ELIQUIS?"
- ELIQUIS can cause a skin rash or severe allergic reaction. Call your doctor or get medical help right away if you have any of the following symptoms:
 - chest pain or tightness
 - swelling of your face or tongue
 - · trouble breathing or wheezing
 - feeling dizzy or faint

Tell your doctor if you have any side effect that bothers you or that does not go away.

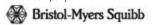
These are not all of the possible side effects of ELIQUIS. For more information, ask your doctor or pharmacist.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

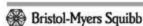
This is a brief summary of the most important information about ELIQUIS. For more information, talk with your doctor or pharmacist, call 1-855-ELIQUIS (1-855-354-7847), or go to www.ELIQUIS.com.

Manufactured by:
Bristol-Myers Squibb Company
Princeton, New Jersey 08543 USA
Marketed by:
Bristol-Myers Squibb Company
Princeton, New Jersey 08543 USA
and
Pfizer Inc
New York, New York 10017 USA

 ${\tt COUMADIN}^{\circledcirc}$ is a trademark of Bristol-Myers Squibb Pharma Company.







PATIENT ASSISTANCE FOUNDATION

NET WORTH: \$11.9 BILLION His private equity giant, Blackstone, celebrates a banner 2014; record profits, record

distributions, record assets under management.

LeaderBoard

NEW BILLIONAIRE

He. Robot

Japan's top medical-cyborg maker joins the ranks of world's richest.

YOSHIYUKI SANKAI, founder and head of Japanese robotics manufacturer Cyberdyne, is now worth an estimated \$1 billion thanks to shares in his company quadrupling since they debuted last March on the Tokyo Stock Exchange.

Sankai, 56, is the brains behind "cybernics," a multidisciplinary field that combines bionics, electronics and physics to build robotic prosthetics most notably HAL (Hybrid Assistive Limb), a wearable suit for the physically impaired that can be controlled by signals from the brain. (The nod to 2001: A Space Odyssey surely doesn't hurt.)

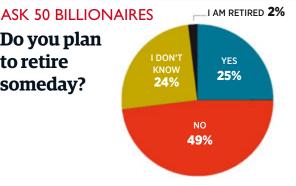
Some 470 HAL suits are currently in use worldwide. "I hope they'll eventually be treated like glasses," Sankai told the Japan News. "Glasses used to be nothing more than gadgets that enable people to see better, but now they're enjoyed as a fashion item too."

That might happen sooner than he thinks. Forecaster SNS projects the global market for "wearable devices" will hit nearly \$20 billion in revenue this year and grow at a compound annual rate of nearly 40% over the next six. (Japan's prime minister, Shinzo Abe, has said he'd like a "robot Olympics" alongside the 2020 Summer Games in Tokyo.)

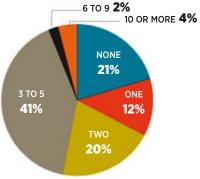
Sankai is determined not to let his cyborgs take over: He has created a dual share structure to keep control of Cyberdyne-Class B shares, all of which he owns, have double the voting rights of the company's other common stock-to prevent HAL, he says, from being used for military or "unethical" purposes.











LeaderBoard

STEVE BALLMER .6 BILLION NET WORTH: \$20.7 BILLION His Microsoft shares have surged since he



BY THE NUMBERS

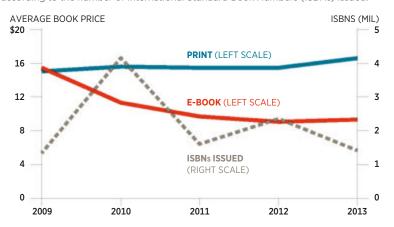
Permanent Press

WHEN AMAZON launched the Kindle in 2007, book purists bemoaned the imminent demise of print. Yet far from heralding a publishing apocalypse, e-books have been adopted only gradually despite their affordability. Although half of U.S. adults own a tablet or e-reader, e-books make up only an estimated 23% of the \$35 billion industry—and Pew Research reports that just 4% of Americans are e-book only.

Sales show digital market share differs greatly by genre, though: While guilty readers of dog-eared Harlequin romances have flocked to the format—36% of units sold in that genre in 2014 were e-books most nonfiction and school textbooks are still purchased in print. The tame-looking Kindle hides many a cheap thrill, too: Digital mysteries accounted for 32% of the genre's units last year, while e-books made up more than a quarter of youngadult units sold, up from just 8% in 2012. Three of the top five Kindle bestsellers of 2014 were YA novels: Gillian Flynn's Gone Girl and Donna Tartt's The Goldfinch were the only grownups included. John Green's teen weepie The Fault in Our Stars was the true standout, however-it was both the top print and e-book seller of 2014.

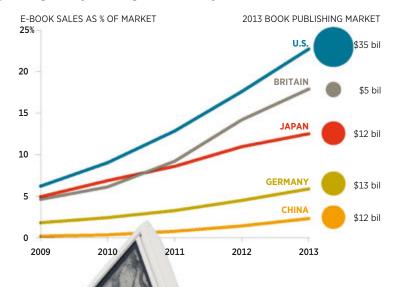
PLUS ÇA CHANGE

The price of printed books hasn't collapsed in the face of lower-cost digital publishing. nor are publishers churning out scads of low-quality e-books. The number of books (both print and digital) being published worldwide is about the same as in 2009, according to the number of International Standard Book Numbers (ISBNs) issued.



UNFINISHED REVOLUTION

Even in the biggest markets e-books are still only a fraction of overall sales (23% of \$35 billion in the U.S.; 18% of \$5 billion in the U.K.), and electronic publishing is barely a rounding error in Germany and China.





Books-a-Zillion: Amazon CEO Jeff Bezos introduces the Kindle in November 2007.

SOURCES: BOWKER; NIELSEN BOOKSCAN; PEW RESEARCH; PWC.

\$1 SPENT IS 1.5 MILES EARNED.



Annual fee \$395? Apply now and get a \$100 statement credit after first purchase.

MileagePlusClub.com • 1-877-227-4245

UNITED



**Pree Checked Bag: Free bags are for first and second checked bags for the primary cardmember and one traveling companion per reservation. Service charges for additional/oversized/overweight, bags may apply. Purchase of ticket(s) with Card is required. See united.com/chasebag for details. **Pricing: Purchase and balance transfer APR is 15.99% variable. Cash advances and overdraft advances APR is 19.24% variable. Penalty APR up to 29.99% variable. Variable APRs change with the market based on the Prime Rate, which was 3.25% on 3/21/14. Annual lee: \$395. Minimum Interest Charge: None. Balance Transfer Fee: 3% of the amount of each advance, but not less than \$5. Note: This account may not be eligible for balance transfers. Cash Advance Fee: 3% of the amount of each advance, but not less than \$10. Foreign Transaction Fee: None. Credit cards are issued by Chase Bank USA, N.A. Subject to credit approval. To obtain information on any changes to these terms after the date above, please call 1-877-227-4245 or visit www.MileagePlusClub.com. You must have a valid permanent home address within the 50 United States or the District of Columbia. Restrictions and limitations apply. Offer subject to change. See www.mileagePlusClub.com for pricing and rewards details. United MileagePlus: Miles accrued, awards, and benefits issued are subject to the rules of the United MileagePlus program. For details, see www.united.com.

LeaderBoard

HOWARD SCHULTZ +\$170 MII I ION

Starbucks boss wants his coffee on even more corners. Shares climb 9% as he announces plan to add 1,650 stores this year—half in Asia.



30 UNDER 30

Snowflakes

Your unique and perfect match from the FORBES 30 Under 30, in 30 words or less.

Nikki Kaufman

NORMAL | 28

Using 3-D printers, Kaufman's operation makes \$199 headphones custom-fitted to vour ears. Order via a mobile app, or visit Normal's New York flagship to see the printing firsthand.



Walker Williams and Evan Stites-Clayton

TEESPRING | 25, 26

Teespring helps budding fashion designers make and sell bespoke T-shirts. Twenty of the site's users have sold more than \$1 million worth of shirts; the company has raised \$55 million.





Kurt Taylor

NEXT GLASS | 26

Taylor's app creates personalized taste profiles, spitting out the percentage likelihood that connoisseurs will enjoy a particular wine or beer and making specific recommendations.

CFI FBRITY 100

Bottle Royale



THE SPIRITS BUSINESS is

booming. U.S. retail sales alone hit \$70 billion last year, up from \$57 billion in 2009. Some of that growth is coming from younger drinkers who are bailing on beer but who wouldn't know an 18-year-old Laphroaig from an 18-day-old Lime-A-Rita-so boozemakers are eagerly signing up celebrity endorsers to hawk their elixirs to a younger generation. The latest? Haig Club, David Beckham's new "single-grain" whisky (no, we don't know, either), which bills itself as "modern Scotland in a glass!" For \$51 you get about 24 ounces of the stuff, packaged in a steroidal cologne bottle that makes us think of nothing so much as the bracing snap of Aqua Velva. Not your cup of celebrity hooch? No worries-you have others to choose from.



George Clooney and Rande Gerber

SPIRIT

Casamigos tequila (\$49) DEBUTED:

2013 CLAIMS:

"Our agave piñas are roasted in traditional brick ovens for 72 hours, while most others steam theirs for 7 hours." So there, most others!

DRINK IT IF:

You're inconsolable that both Amal Alamuddin and Cindy Crawford are off the market. For now.



CLAIMS: "A high-quality absinthe made with Swiss accuracy and precision." Like a Tag Heuer with a "hallucination" complication.

DRINK IT IF:

You have (literal) skeletons in your closet.





CELEB:

Dan Aykroyd SPIRIT

Crystal Head Vodka (\$50)**DEBUTED:**

2008

CLAIMS:

"Highest-quality Peaches & Cream corn is distilled four times into a neutral grain gluten-free spirit." Glutenfree cirrhosis is the best cirrhosis.

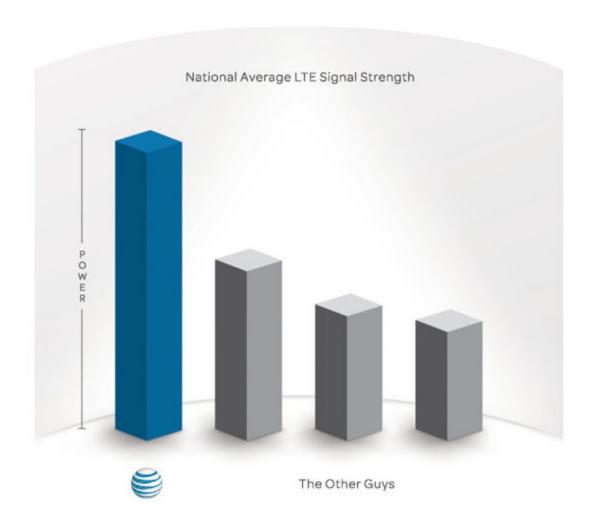
DRINK IT IF:

You're hoping for a career-capping cameo in the coming Ghostbusters remake.

PHOTOGRAPH: TED S. WARREN/AP (TOP); ILLUSTRATIONS BY PATRICK WELCH

It's official.

AT&T's network now has the nation's strongest LTE signal.





1.866.MOBILITY ATT.COM/network Visita Store

LeaderBoard

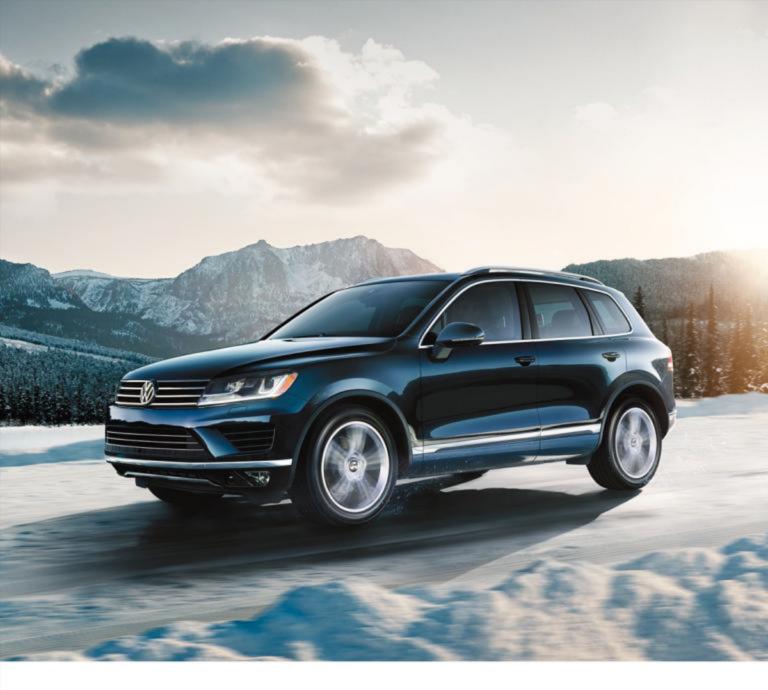
KATY PERRY +140,000 FOLLOWERS

The lollipop songstress added twice as many Twitter followers on Super Bowl Sunday as Bruno Mars did after last vear's halftime extravaganza. Credit Left Shark, apparently.



THRILLIONAIRES





Everything we do best. All under one panoramic sunroof.

The new Volkswagen Touareg TDI® Clean Diesel. Let the sun shine down through the available panoramic sunroof* on every luxurious detail in the new Touareg, the pinnacle of German craftsmanship. Get comfortable in its 8-way power-adjustable heated front seats and enjoy available new features, like Lane Departure Warning, Autonomous Emergency Braking,** and Adaptive Cruise Control – all of which help offer the invaluable amenity of more confidence on the road. It's everything we've perfected, perfectly combined. Isn't it time for German engineering?



NET WORTH: \$7.5 BILLION

Italy's ex-premier catches a bit of a break: His one-year community-service sentence for tax fraud is reportedly chopped by a judge to 320 days for "good behavior."



ON THE MARKET

Holy Rollers

Two popes and their two-wheelers.

LeaderBoard

WHEN YOUR DAILY SLED is the bulletproof Popemobile, you don't have much use for a motorcycle, let alone a pair of them. But that hasn't stopped Harley-Davidson from giving the Vatican a hog now and then. In 2013 Willie G. Davidson, a retired Harley designer and grandson of the

company's founder, presented Pope Francis with a 110thanniversary Dyna Super Glide, which was auctioned last year (along with a motorcycle jacket signed by His Holiness) at Bonhams in Paris.

This February the auction house put a second Harley up for bid: a Softail Classic that Davidson gave to Pope Benedict XVI, which ended up in Francis' garage (near the Pirelli calendar) after Benedict abdicated in early 2013. The proceeds from each sale went to charity—Heaven's Angels indeed.



Blessed ... but beaten

NETFLIX

SPACEY

ROBIN WRIGHT

A NETFLIX ORIGINAL SERIES

HOUSE STORY



LeaderBoard

Amazon shares soar 23% after profitable quarter; his fortune jumps by nearly four times Barnes & Noble's market value.



CONVERSATION



MATTHEW HERPER'S Feb. 9 profile of Actavis CEO Brent Saunders, who is rewriting the standard drug business model, spurred comments from around the medical world. Health care consultant John Manzella called Saunders "the new delivery system of Big Pharma," comparing his disruptions with "what the Dells of the world did to the IBM behemoths," but adding, "Ironically, it will only be a matter of time before he becomes the dragon he is slaying." Tweeted WebMD's Adam Grossberg: "Really enjoyed @matthewherper's account of Brent Saunders' culture building + value creation." Wall Street Journal biotech writer Jonathan Rockoff put tongue firmly in cheek. "Loved the article," he tweeted, "but wish just once you referred to him as future Pfizer CEO."

YOUR CHEATIN'

Adam Tanner's Feb. 9 piece about adultery-facilitating site Ashley Madison—which makes money by making it easier for wandering spouses to conduct their discreet business—drew impassioned reader responses on Facebook.

CARLY HARTWICK

Very disappointing that this is a reality today, but not surprising one bit.

GEORGE YAZBECK

Great businessman, low moral standards. It would be ironic if his wife cheated on him, but I wouldn't wish that on anyone.

RENEE DESCARTES

Why is everyone judging? If you work on your relationship as much as your job, this site is irrelevant.

LAURENCE JAMES

Life is short. It's sad to think someone is profiting from ruining lives and families.

TEJINDER SINGH

Whether it's morally right or wrong is not the issue. Whether it's *profitable* is.

AMY GROFF

With social media and texting, why be honest? All the lies are gone with the click of a delete button.

PAUL UDAKA ATHER

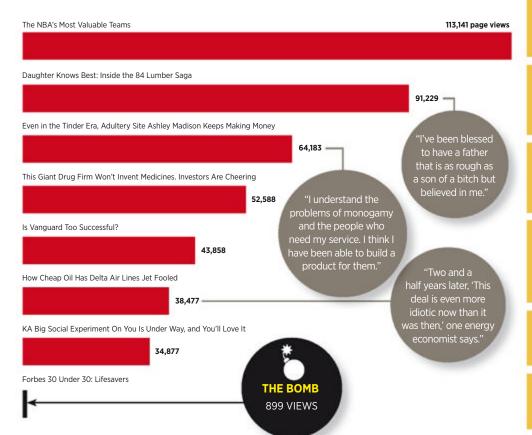
He found a gap in the market.

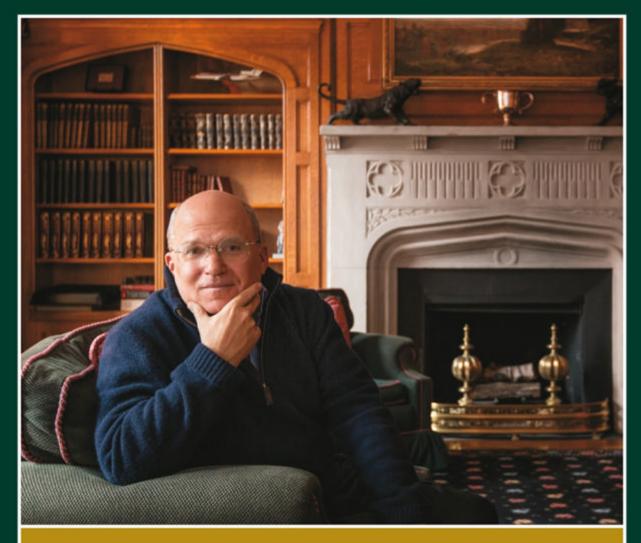
IGOR KOSKIE

Good for him. The sex industry brings big bucks.

THE INTEREST GRAPH

Sports, feuding families and cheating spouses: Readers online gobbled up the good stuff from our Feb. 9 issue.





"My relationship with First Republic has been one of the most important in my life."

CHARLES (CHAS) PHILLIPS
Retired Executive



FIRST REPUBLIC BANK

It's a privilege to serve you*

LATE BLOOMERS IN PERIL



IN LAST MONTH'S SUPER BOWL

neither the New England Patriots nor the Seattle Seahawks had a five-star recruit in their starting lineup. Translation: Not one of the 44 starters was a top-rated prospect in high school.

If you cheer for late bloomers, it gets even better. According to 247sports, a website that keeps track of who's who in high school sports, both the Seahawks and the Patriots had only four four-star recruits among their

starters. As first reported by CBS Sports, the Seahawks had an average rating of 2.4 among its starters, while the Patriots scored 2.3.

Now look at the quarterbacks. Russell Wilson was a three-star prospect coming out of Collegiate High School in Richmond, Va. He began his college football career at North Carolina State, transferred to the University of Wisconsin and in 2012 was drafted in the NFL's third round. Tom Brady didn't even start at the University of Michigan until his senior year. He was drafted in the NFL's sixth round.

There are no second acts in America, wrongly observed F. Scott Fitzgerald. But Fitzgerald was an early bloomer: attended Princeton and was a literary success in his mid-20s. But that was his peak. By his 30s Fitzgerald was spiraling down. One imagines he met all kinds of late bloomers and second acts who were on their way up. He died a bitter man at age 44, the same age that Raymond Chandler began to write detective stories. Chandler was 51 in 1939, the year his first book, The Big Sleep, was published.

ALGORITHMIC VALLEY REPLACES SILICON VALLEY

I find these stories fascinating and encouraging. More than other advanced countries, the U.S. accommodates the late bloomer. Or at least we always used to. But I fear the U.S. is trending the wrong way. Ascendant in our culture today is the early-bloomer hero. The story line is almost a cliché now: The prodigy who aces the SATs, graduates from Stanford at 20, starts a company, raises millions of dollars and sells the thing to Google or Facebook for billions two years later.

We're right to celebrate early success. We at FORBES do this in our annual 30 Under 30 issue and at our wildly successful Under 30 conferences. But the unintended result is that the late bloomer is getting crowded out. He/she is vanishing in the American imagination, especially with regard to business and, in particular, technology. America is in danger of losing a valuable narrative about itself, and

the consequences are not trivial.

In January I moderated a panel at the STEM 2.0 conference, which was sponsored by a Washington, D.C. organization called STEM Connector. STEM stands for science, technology, engineering and math. The purpose behind STEM promotion is that individual careers and countries will prosper to the degree that they have STEM fluency. This makes sense in a technology-driven economy. The facts support the premise, and few would argue.

The idea of STEM fluency as a prerequisite for individual and national success is not new. Yet progress has been slow, if not nonexistent. The U.S.' STEM fluency in K-12 education is falling behind that of other countries. American culture doesn't warm to STEM heroes the way it does to athletes, actors and pop singers. Mark Zuckerberg hasn't captured the country's imagination even to the degree that Steve Jobs, Bill Gates, Henry Ford and Thomas Edison did.

Why is that? My theory is that today's technology business heroes are both so freakishly smart and young that they don't inspire the rest of us. In fact, they intimidate the rest of us. It's worth asking why. My guess: For decades Silicon Valley had among its role models late bloomers and tinkerers. For instance, Bill Hewlett barely got into college; Steve Jobs and Bill Gates dropped out of college; Andy Grove went to City College of New York.

Today a poisonous idea has taken root in Silicon Valley. It's this: If you didn't score 800 on your math SATs and didn't get into Harvard, Stanford, Caltech or MIT, you don't belong. You're not one of the elite. Sure, you might start tomorrow's billion-dollar company, but the odds are so long that the VCs won't fund you.

Silicon Valley has morphed into Algorithmic Valley, which means if you didn't hit that perfect SAT score, forget it. Is that a good message to be sending if our goal is to raise STEM fluency? **(B)**

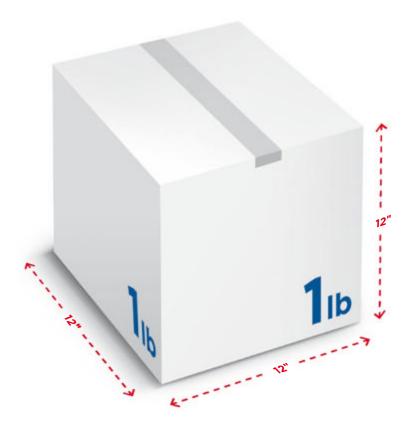
RICH KARLGAARD IS THE PUBLISHER AT FORBES. HIS LATEST BOOK, THE SOFT EDGE: WHERE GREAT COMPANIES FIND LASTING SUCCESS, CAME OUT IN APRIL. FOR HIS PAST COLUMNS AND BLOGS VISIT OUR WEBSITE AT WWW.FORBES.COM/KARLGAARD.

Q: HOW MUCH DOES THIS 1-POUND BOX WEIGH?

A: 11 POUNDS, IF YOU USE THE WRONG SHIPPING COMPANY.

Something is different this year: Some shipping companies are trying to box you in by expanding their use of **Dimensional (DIM) Weight Pricing**. That means you pay for your domestic package's actual weight or its dimensional weight — whichever is greater. For example, you could be billed the 11-pound rate for this 1-pound box because of its 12"x12"x12" size. That could get expensive. But you have a choice: The **USPS**® continues to offer a broad range of efficient and economical shipping options. Because we understand that one size does not fit all.

To weigh your shipping options go to usps.com/yourchoice





OBAMA: BAD BUT LUCKY



THERE'S NO SUCH THING as justice in politics. Or so it would seem. Take the case of Barack Obama. By any standards he's been a bad President-idle, muddled, contradictory and weak. His one major achievement, ObamaCare, is likely to prove costly and inefficient. He has neglected U.S. defense and allowed Vladimir Putin to strut around the world stage almost unopposed. Obama's Administration is crowded with enemies of business. If it

has an ideology, it's watered-down socialism. Obama has done nothing positive for the economy, and many of his decisions have been discouraging and obstructive to private enterprise.

Yet what's happened? As Obama enters the last quarter of his eightyear presidency, all the indicators show the U.S. economy to be in the green, whereas Europe, except for Britain, is in the doldrums. Even China's boom is slowing fast. U.S. job creation is tremendous. Unemployment is down. People feel richer. Investment is high. Inflation is low. As things stand, the U.S. seems to be entering one of its most promising phases.

Fracking, in which America leads the world, has completely transformed the energy market and will soon take the U.S. from being a huge importer to a net exporter, ensuring cheap domestic fuel. All of America's critics and enemies, especially Russia, Venezuela and Iran, have been badly hit by the collapse in oil prices. Venezuela, which had been subsidizing opponents of the U.S. all over Latin America, is close to starvation. Iran, which has defied the West's economic sanctions to continue its efforts in making nuclear bombs, is likely to run out of funds this year. And Russia, once the world's biggest exporter of oil and gas, is watching its economy collapse because of the energy market's transformation.

Mr. Obama has contributed absolutely nothing to these remarkable and welcome events. In fact, he's even attempted to obstruct the fracking boom. Left to himself, Obama would probably have struck a deal with Putin and lifted the sanctions on Russia.

So as things stand, the President has been handed a sort of victory on a plate, as he's bound to get credit for the improvement in the U.S.' fortunes.

Obama's calamitous defeat in the last midterm elections already seems a long time ago. It wasn't overwhelming enough to prevent his vetoing any congressional move he finds insupportable. He now stands a fair chance of being able to whip up popular support for a White House policy of legislative obstruction. From being a person whom Democratic candidates wanted to keep away from their campaigns he's become

a President with a touch of luck, whose nod is worth having. Look for a rapprochement between Mr. Obama and Mrs. Clinton in 2015. In a few short weeks the odds of a GOP victory in 2016 have changed to a close-run contest, with Mrs. Clinton-if she can secure the Democratic nomination—well-placed.

LEAD TO TAKE THE LEAD

What are the Republicans to do? Hillary Clinton has a head start on anyone they put up. What they ought to do, given their domination of Congress, is take the lead in a worldwide campaign to fight Muslim fundamentalism, something Obama has conspicuously failed to do. Given the U.S.' enormous military capabilities, especially in air power, its efforts to contain ISIS have been feeble. Much of the actual fighting has been left to the Kurds, who have responded magnificently. But Obama has given them little encouragement. ISIS has flourished not because of its intrinsic qualities and appeal but because of the West's policy vacuum.

People in Europe are frightened by the way in which the war against Islamic terrorism is being lost through lack of leadership. The only international figure who provides leadership in both word and deed is Prime Minister Benjamin Netanyahu of Israel. Increasingly, European Jews who are in a position to change their location-especially those in France—are moving to Israel, which is regarded not so much as safe as resolute. It has a sophisticated range of tactical nuclear weapons and is quite prepared to use them, if necessary. Of course, this wouldn't be necessary if the U.S. were doing its job. But a Republican Congress could provide a kind of leadership substitute. Nothing can entirely take the place of a strong and clear-sighted President in the White House, but in this needy and disturbed world, a determined combination of Republican senators and congressmen would be a hopeful sign. May it soon emerge. **F**



#GoKnow



AN ECONOMY REVIVED BY THE GOP



IN JANUARY, in his annual State of the Union address, President Obama bragged that "our economy is growing and creating jobs at the fastest pace since 1999." It's great news, to be sure. But according to a new paper from the National Bureau of Economic Research, the recent improvement in the labor market may be due to a policy change that Obama adamantly opposed: ending extended unemployment benefits.

Here's the history. In the aftermath of

the financial crisis Congress passed the Emergency Unemployment Compensation Act of 2008. The new law dramatically extended the duration of unemployment benefits, from a typical length of 26 weeks to as many as 39.

The American Recovery & Reinvestment Act of 2009, commonly known as the "stimulus bill," further expanded these benefits, such that by the end of 2013 the average duration of unemployment benefits exceeded one year. Furthermore, ARRA expanded eligibility for unemployment benefits to part-time workers and exempted the first \$2,400 of unemployment benefits from taxation. Classical economists criticized these expansions, arguing that they would encourage more people to stay out of the workforce. But President Obama pushed for the continuation and expansion—of extended benefits throughout his first term.

Finally, after years of slack labor markets, in July 2013 the unemploy-

OBAMA TOUTS A RISE IN EMPLOYMENT CAUSED BY A POLICY HE OPPOSED

ment rate fell below 7.5%. In December 2013 the House of Representatives—now controlled by Republicans—allowed the benefit extension to expire, arguing that the crisis of the Great Recession had passed.

Obama blasted the House's decision: "For many of their constituents who are unemployed through no fault of their own, [Republicans] will leave them with no income at all. And denying families that security is just plain cruel." The President's Council of Economic Advisers and the Department of Labor predicted that the expiration of extended benefits would reduce employment by 240,000; the Congressional Budget Office estimated that employment would be lower by 200,000.

But the predicted apocalypse never occurred. Instead, the unemployment rate dropped from 6.7% in December 2013 to 5.6% a year later, despite a drop in the growth of aggregate productivity. The new NBER paper—authored by economists at the University of Oslo, Stockholm University and

the University of Pennsylvania—finds a strong relationship between the drop in unemployment benefits and the rise in employment.

The authors compared neighboring counties in adjacent states, and found that states that had the shortest duration of unemployment benefits experienced the strongest labor market recovery. "A 1% drop in benefit duration leads to a statistically significant increase of employment. ... 1.8 million jobs were created in 2014 due to the benefit cut." Those 1.8 million jobs represent 1.2% of the U.S. labor force: correlating quite closely to the drop in unemployment over the past year.

The new paper is a follow-up to earlier research from the same authors about the labor market in North Carolina. When North Carolina shut down its extended unemployment benefits program in July 2013, "robust employment growth" followed.

What can we learn from all this? Nothing we shouldn't have already known. If you pay people to stay unemployed, more people will stay unemployed. In order to recruit workers who have the option of remaining on unemployment benefits, companies have to increase their wages.

> Higher wages, in turn, make it costlier and harder to hire new workers, leading to fewer of them.

It's a problem that has been endemic under President Obama. The

Affordable Care Act, Obama's signature health care law, heavily discourages hiring. In February the Congressional Budget Office predicted that ObamaCare would cause "a decline in the number of full-time-equivalent workers of about 2.0 million in 2017, rising to about 2.5 million in 2024."

Presidents have been getting blamed-and taking credit—for the nation's economic performance for a very long time. So it's natural that President Obama would want to boast about signs that the U.S. employment picture is improving. But it may in fact be Republicans in Congress who deserve bragging rights, and freemarket economics that deserves vindication. **B**

Cartier
Women's
Initiative
Awards



Cartier seeks EXCEPTIONAL ENTREPRENEURS

Apply Now!

For more information including eligibility criteria visit:

www.cartierwomensinitiative.com

"There are no bad ideas. Except yours, Karl."



BECAUSE WE DON'T GET JUDGED ENOUGH.

2015 GLOBAL ACE AWARDS FOR THE BEST IN B2B MARKETING.



Call for entries is open.

Deadline: March 20th.

Visit www.bmanyc.org to enter.





STRATEGIES

Natural Gas Detective 42

TECHNOLOGY

THE REAL MINORITY REPORT 46

DEAD DATA? DATTO! 48

ENTREPRENEURS



PAGE 40

LED lightbulbs and birdseed.



RETAIL

Safety in Numbers

With Ace Hardware's distinctive jingle and neighborly service, members of its national co-op are taking on the big boxes by sticking together.

BY CLARE O'CONNOR

hen Jeremy Melnick's grandfather opened his first Ace Hardware store along Chicago's ritzy Gold Coast in 1950, there wasn't a whole lot of competition. Wal-Mart? An Arkansas five-and-dime. Lowe's was two stores in North Carolina. Home Depot was still 29 years away from opening its first location. Amazon CEO Jeff Bezos was 14 years shy of being born.

The Melnicks—Jeremy, 43, and dad Les, 67—own 6 of the 4,794 Ace Hardware stores that make up the country's largest retail cooperative outside the grocery sector. As they've expanded their family businesswithin-a-business into a local chain, some 20 Home Depots have cropped up along greater Chicago's highways and strip malls in the past two decades, each 100,000 square feet (versus the Melnicks' 8,000-square-foot corner stores). "They surround us," Jeremy says.

Not that he's complaining. Despite the competition, his business is good. Surprisingly good. And so is Ace Hardware's bottom line. The Oak Brook, Ill. co-op expects a year-on-year revenue increase of 13% to about \$4.7 billion and a profit boost of 35% when it releases its 2014 annual report in April, following eight consecutive quarters of record sales.

The reason for success, explains Ace CEO John Venhuizen, a charismatic 44-year-old who speaks with the fervor of a preacher, is store owners like the Melnicks: entrepreneurs with a deep knowledge of their local market, inventory fine-tuned to a neighborhood's demographic and the sort of exacting customer service a typical big-box store with low pay and high employee turnover just can't match. Jeremy knows the make

and model of bathroom faucets installed in every condo complex and apartment building within a short drive of all his Chicago stores—a boon in attracting fellow small business owners, like local plumbers, to Ace. "It's a big deal," says Venhuizen, a 22-year company veteran. "It's a differentiator. And I'll tell you, it's exceedingly hard."

Jeremy knows his stores' strengths. He doesn't sell lumber. For that you can go to



Home Depot or Lowe's. He does sell what seems like every kind of lightbulb in production. When a bulb blows he knows you'd rather grab a new one from your local Ace than navigate the labyrinthine aisles of a big box or wait in the dark for an Amazon delivery. "If you want to remodel your house, you'll go to them," he says. "We're making our money \$20, \$25 at a time."

The company's co-op business model means its store owners are its only shareholders. It's the opposite of a franchise system: Thousands of entrepreneurs like the Melnicks band together to boost their col-

> lective buying power and reduce costs. The corporate structure, with Venhuizen at the helm since 2013. exists only to do their bidding, overseeing 14 regional distribution centers that supply each store with the right mix of \$800 Weber grills and \$15 hammers.

> When an Ace store opens (or an existing hardware outlet converts to Ace), the owner buys \$5,000 in shares. He or she can purchase any of the 80,000-odd products from the co-op's warehouses, make use of the well-known red-and-white logo and branding ("The helpful place," its motto promises) and receive dividends based on purchases rather than equity. Each store kicks in for activities that benefit the whole co-op, like advertising and marketing (Ace's annual ad budget is \$100 million).

> In the past 18 months Ace has seen some 144 stores jump ship from competitors, including a handful from its two fellow hardware co-ops, True Value and Do It Best. During that time just 49 Ace stores have left the fold.

"In order to increase

your market share, you have to go out and steal stores from someone else," says Jim Robisch, senior partner in retail at the Farnsworth Group, a home improvement industry consultancy. And if a store is consistently underperforming? "Ace is really strict at controlling the integrity of their brand. They have a crew of people who'll go round and tear those Ace signs down whether you like it or not." (A spokesperson says stores that fall short of standards must remove Ace logos, but they still have access to Ace's supply chain.)

The company was born in 1924 when four Chicago-area entrepreneurs decided they could get better deals on inventory by joining forces. Ace opened its first warehouse just prior to the 1929 crash and subsequent economic devastation, its founders capitalizing on a need for hardware and tools as homeowners were forced to do their own patching up and repairing. The company briefly flirted with converting from a retailer-owned co-op to a for-profit corporation during the most recent recession in 2007.

"There would have been no change in shareholder ownership, only structure," says Venhuizen. "With the relatively new U.S. dividend tax structure, there is a less compelling capital argument to make such a conversion now, so we have no existing plans to do so."

Next up, Ace is tackling same-day delivery, one of the hottest trends in retail. Tests in 33 stores across six states started on Jan. 26. It's a pretty obvious move, says Venhuizen, since 70% of U.S. households are within a 15-minute drive of an Ace store.

"I don't know if you can deliver a grill with a drone, but our trucks'll get it there," he says with a grin. Besides, 60% of Ace's stores already provide delivery to customers, albeit in a haphazard way—more like a favor to a friend who doesn't have a car than part of a business model. Jeremy Melnick has delivered plungers. He's screwed in lightbulbs. "They do this already," says Venhuizen. "Doesn't everybody?" 🗱

FINAL THOUGHT

🧩 "Cooperation, which is the thing we must strive for today, begins where competition leaves off."

-FRANKLIN D. ROOSEVELT

TRENDING

What the 65 million Forbes.com users are talking about. For a deeper dive go to FORBES.COM/STRATEGIES

PERSON

MARY BARRA

GM's CEO faced daunting challenges her first year—and won. Great Q4 results, a recall program that's working, vummv dividends for investors and even \$9.000 bonuses for factory workers.



COMPANY WALT DISNEY

The *Frozen* phenomenon shows no signs of letting go. A new Star Wars blasts off this year. Marvel is still marvelous. And ESPN remains a juggernaut. Can anyone compete?

SWING PRODUCER

The oil-price plunge has staggered U.S. drillers, but some see opportunity. Their theory: If OPEC collapses, America could supplant Saudi Arabia as the global price setter.



ou'd think she'd be happy.
When the Environmental
Protection Agency announced
in January its intention to
clamp down on emissions
of methane, a potent greenhouse gas that
traps 25 times more heat than does carbon
dioxide, it was great news for Allison
Sawyer. Her company, Rebellion Photonics,
is the world's first (and only) maker of
hyperspectral video cameras—the best way
to detect fugitive emissions of methane and
other volatile gases escaping from oil- and
gas fields and petrochemical refineries.

The invisible, odorless gas is the primary constituent of the natural gas burned to generate 30% of America's electricity. Among other objectives, the EPA has a goal of reducing methane emissions from oil and gas operations to 60% of 2012 levels in the next decade. Houston-based Rebellion is already working for giants like Chevron, BP and the natural gas driller Southwestern Energy to

detect and stop such emissions. Despite the downturn in oil and gas prices, business is brisk in states that require regular monitoring of wells and storage tanks, like Pennsylvania, Wyoming and Colorado (where Rebellion was the first service provider officially approved by state regulators). New federal rules should be a boon for Rebellion.

But happy she is not. "I'd prefer not to be used because we're required," says Sawyer, 30, who founded the company five years ago. "Also, it's not necessary. What we're catching is product lost, revenue lost. It makes economic sense to use us, regulation or no regulation."

That sentiment—part straight-talking scientist, part free-market idealist—pretty much sums up Sawyer. In 2009 she was at Rice University working toward her M.B.A. She already had a master's degree in applied physics and was interning at the Houston Technology Center, a startup incubator. Inspired by a family of entrepreneurs, Sawyer knew

Smile! Rebellion Photonics' Robert Kester and Allison Sawyer with their hyperspectral video camera.

COMPLEXITY

IS A PROCESS-ORIENTED PROCESS.



SIMPLE PUTS PEOPLE FIRST.



The larger you grow, the harder it is to take care of the people who brought you there. SAP's HR solutions are integrated with your business, making it easier for you to hire, engage and empower your people. So you can all succeed together. That's running simple. Find out more at sap.com/runsimple



she wanted to be her own boss. One day Robert Kester walked in. He was a Ph.D. candidate in bioengineering and had just published his breakthrough research in the field of hyperspectral imaging, the kind of technology that astronomers use to find seas of liquid methane on the moons of Saturn. Hyperspectral imaging works on the premise that every type of

gas absorbs and reflects light in a unique way. Until Kester's work this imaging could be done only in snapshots; he patented the first hyperspectral video camera.

But Kester was using it to examine things through a microscope. Sawyer wondered if you could turn it around. "I asked if it could be used for wide-field imaging," she recalls. "He said, 'Yeah,' and my brain exploded." Myriad applications sprang to mind: Farmers could determine the health of crops. Police could monitor for chemical or biological attacks. And, of course, the oil, gas and chemical industries could detect leaks invisible to the naked eye. "Holy Mother, do you know what you've invented?" she asked the non-plussed Kester.

The existing standard for image-based gas detection was unreliable: single-frame cameras or handheld infrared cameras that required the user to climb all over equipment and storage tanks in order to pinpoint leaks. The biggest competitor was \$4.3 billion Flir Systems, a maker of light-intensifying and infrared cameras. Even then infrared discerns only hot from cold. A plume of gas seen that way might be methane—or harmless steam. "Until Rebellion, emissions monitoring was really expensive, really complicated and totally inaccurate," says Sawyer. "You would get a lot of false positives."

It didn't take her long to write a business plan and get Kester on board. In June 2010 they started working on Rebellion full-time. They won \$125,000 from business plan competitions and scored a \$1 million U.S. Air Force contract to mount the camera on drones.



Visible invisible: Rebellion's cameras make gas leaks easy to see.

(Sawyer also won a spot on the 2014 FORBES 30 Under 30 list.)

That all helped them bootstrap the company while developing what's come to be their primary offering: a 50-pound, foot-tall, truckmounted, wide-field, hyperspectral video camera. Rebellion mounts its cameras on 35-foot extendable arms, so they can drive to refiner-

ies and oil- and gas fields and survey with bird's-eye views for about \$250 a visit. With 487,000 gas wells and 1.6 million miles of natural gas pipelines in the U.S., the size of the potential market is staggering. Since even small leaks can cost thousands of dollars in annual revenue, customers have been quick to line up.

A year ago, to make the leap from one truck to an entire fleet, Rebellion took \$10.4 million in funding from San Francisco-based Tinicum Capital Partners, a deal that valued the company—still unprofitable but clocking some \$4 million a year in revenues—at more than \$30 million. Wasn't the \$1.3 billion private equity group nervous about the young age of the founders? "No," says Tinicum partner Skip Zedlitz, "because they had done such a good job building something that had never been done before."

So where does Rebellion go from here? In December it received a \$4.3 million grant from the Department of Energy's Advanced Research Projects Agency to build a portable miniature spectrometer. It's starting to market services to oil companies overseas. Of course, there's always the chance an oilfield service giant like Schlumberger or Halliburton will make them the proverbial offer they can't refuse. When a potential new customer in North Dakota's Bakken oilfields recently delayed a contract because of plunging oil prices, Sawyer was unconcerned. The inexorable trend toward more state and federal regulations on methane monitoring will help Rebellion for years to come-whether she likes it or not. 🕌

STAT SHEET

2014'S REAL BEST PICTURES

Let the Oscars laud artistic achievement— these five films were tops in both critical acclaim and box office. The Lego Movie had the highest Rotten Tomatoes score of the top-grossing movies and the fourth-biggest ticket sales. Yet just one measly Oscar nod! Is there no justice in Hollywood?



The Lego Movie

BOX OFFICE RANK
4
EARNINGS
\$258 mil
ROTTEN TOMATOES

How to Train Your Dragon 2

96%

BOX OFFICE RANK
17
EARNINGS
\$177 mil
ROTTEN TOMATOES
92%

Guardians of the Galaxy

BOX OFFICE RANK
2
EARNINGS
\$333 mil
ROTTEN TOMATOES
91%

X-Men: Days of Future Past

BOX OFFICE RANK
9

EARNINGS
\$234 mil

ROTTEN TOMATOES
91%

Big Hero 6

BOX OFFICE RANK
10
EARNINGS
\$218 mil
ROTTEN TOMATOES
90%

FINAL THOUGHT



"The unseen enemy is the most fearsome." – George R.R. MARTIN









TECHNOLOGY

BIG DATA

Server And Protect

PredPol turned an earthquake prediction model and years of policing data into a map of crime that's about to take place.

BY ELLEN HUET

wo or three times a day in almost 60 cities across America, thousands of police officers line up for roll call at the beginning of their shifts. They're handed a marked-up map of their beat and told: Between calls go to the little red boxes, each about half the size of a city block. The department's crime analysts didn't make these maps. They're produced by PredPol, a "predictive policing" software program that shovels historical crime data through a proprietary algorithm and spits out the 10 to 20 spots most likely to see crime over the next shift. If patrol officers spend only 5% to 15% of their shift in those boxes, PredPol says, they'll stop more crime than they would using their own knowledge.

Police departments pay around \$10,000 to \$150,000 a year to gain access to these red boxes, having heard that other departments that do so have seen double-digit drops in crime. It's impossible to know if PredPol prevents crime, since crime rates fluctuate, or to know the details of the software's black-box algorithm, but budget-strapped police chiefs don't care. Santa Cruz saw burglaries drop by 11% and robberies by 27% in the first year of using the software. "I'm not really concerned about the formulas," said Atlanta Police Chief George Turner, who implemented the software in July 2013. "That's not my business. My business is to fight crime in my city."

Predictive policing is hot stuff: In a 2012 survey of almost 200 police agencies 70%



PredPol CEO Larry Samuels rolls into the red box with two of Modesto's finest.

said they planned to implement or increase use of predictive policing technology in the next two to five years. IBM, Palantir and Motorola all dabble in it, but PredPol, a three-year-old startup in Santa Cruz, Calif., is among the first firms to specialize in predictive policing. It has raised \$3.7 million in venture funding and a year ago hired a CEO, Larry Samuels, who had stints at Atari and Creative Labs. He expects revenue of \$5 million to \$6 million in 2015, which he says will likely be PredPol's "breakout year," but hints that if the company hooks some big fish, he hopes to triple that.

PredPol is being used in almost 60 departments, the biggest of which are Los Angeles and Atlanta, but Samuels is eyeing more. "My



goal by the end of 2015 is to have the majority of large North American metro areas using this," Samuels says. "The market is ready."

The public may be less so, given already edgy relations with police. PredPol has had to educate people on what the software doesn't do. It's not sci-fi's Minority Report, in which police target specific criminals based on their intent. Instead, it focuses on location, using time, place and type of crime to unearth patterns. For young cops it's a faster education on the streets they're supposed to protect. "We have a very young department, and we have to be strategic about where we spend our time," says Modesto Police Captain Rick Armendariz, Law enforcement agencies are exploiting the analysis in creative ways. For a while a Los Angeles division tweeted out daily hot spots so citizens could keep an eye on

them. Modesto parks its "armadillo"—an armored truck with four live-feed cameras-in one of its PredPol red boxes each day.

PredPol's algorithm was born when Jeff Brantingham and his cofounder, George Mohler, were working at UCLA poring over large data sets in the late 2000s. They saw that criminal activity and seismic activity follow surprisingly similar patterns. Each new event—an earthquake or a crime—can be traced back to one of two causes: a fixed factor (like an earthquake fault or a rowdy bar)

or a variable factor (like another earthquake, which causes aftershocks nearby, or a gang shooting, which triggers retaliatory shootings in the same neighborhood). Each factor can be boiled down to the usual rate it triggers other crimes. For example, in Long Beach a home burglary instantly puts any home within a mile at heightened risk, with the house next door at the highest risk. "A lot of human behavior can be explained with very simple mathematical models," says Brantingham.

PredPol is sexy but not quite proven. Atlanta deployed it in two of six precincts and saw drops, compared with flat or higher crime rates in the others. But the cops in those precincts may have acted differently because they knew they were being given a fancy new tool. Brantingham hopes to get into a peer-reviewed journal PredPol's most rigorous study, in Los Angeles, which showed that it accurately predicted twice as many crimes as LAPD's analysts did. An independent RAND Corp. study of a non-PredPol predictive policing effort in Shreveport, La. found it had no effect on crime reduction, in part because cops stopped following the program after the first few months.

Even if PredPol reduces crime, it raises qualms about how it's applied. Louisiana State criminologist Peter Scharf worries that the red-box designation might cause young cops to exaggerate a neighborhood's dangers. "I go in this box and everybody's Michael Brown," he says. Joel Caplan, a Rutgers criminologist, says predictive software would be better if it helped fix a crime spot's underlying problems. Others worry that police chiefs and city governments will rush into the embrace of Big Data without understanding how it works. "It's such a seductive idea that you could have a computer predict crime," says University of the District of Columbia law professor Andrew Ferguson.

Brantingham acknowledges the concerns but ultimately trusts a cop's intuition. "We tell officers, 'It's up to you to use your knowledge, skills, experience and training in the most appropriate way to stop crime."

For a deeper dive go to FORBES.COM/TECHNOLOGY

TRENDING

What the 65 million

Forbes.com users

are talking about.

COMPANY APPLE

Biggest. Quarter. Ever. In three months Apple grossed \$74.6 billion (more than Google's entire year) with \$18 billion in profit. smashing Exxon Mobil's 2012 Q2 record of \$15.9 billion.



IDEA **EYE TRACKING**

This user interface for manipulating mobile devices is moving beyond gimmick, but we'd be happy merely to play Fruit Ninja with our baby blues.



PERSON TOM WHEELER

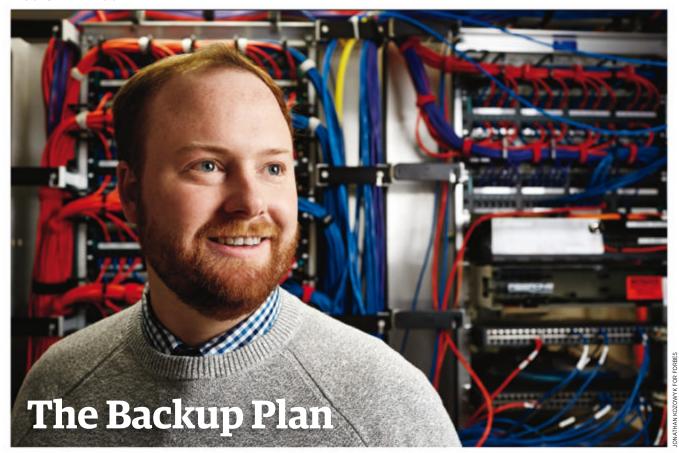
The FCC chairman is a veritable Catherine wheel of change: He's now calling for strict regulation of the Web and may overrule state laws that restrict city governments from building faster municipal networks.

FINAL THOUGHT

K "The idea that the future is unpredictable is undermined every day by the ease with which the past is explained." - DANIEL KAHNEMAN

TECHNOLOGY

30 UNDER 30



Austin McChord makes big money selling peace of mind to small businesses hoping to avoid the catastrophe of data loss.

BY STEVEN BERTONI

ustin McChord offers up a smoking cup of liquid nitrogen. "Dip your finger in it. It boils off right away." We dip, and it does. "We bought a tank to make ice cream, but we do all kinds of weird. random stuff—we've frozen a few computers, and they just shatter." He dumps the liquid nitrogen on the floor and guides me through the rest of his geek heaven of an office: the Times Square-style LED wall for Super Nintendo tournaments, the collection of homemade drones and Japanese sleep pods ("Comfortable for one person but too small for two").

Despite the tech swag, the 29-year-old CEO of data backup company Datto is far from Silicon Valley's glitz-3,000 miles. Headquartered in a drab office park in

Norwalk, Conn., Datto deals in the coma-inducing business of information recovery. Just as Amazon Web Services provides any size business with cheap, all-you-can-eat computing power via the cloud, Datto's subscription service will revive a company's network instantly when things go on the fritz. While the Snapchats and WhatsApps get hype for attracting hundreds of millions of users, McChord is quietly doing the same trick with revenue. Next to the videogames, screens flash daily sales figures down to the penny. In 2014 McChord did just under \$100 million in revenue—up 32-fold since 2010. Today Datto's 400-plus employees support 5 million clients worldwide, including a handful in Greenland.

Bigger firms have taken notice. In early 2013 a security firm-McChord won't say which-of**Datto founder McChord:** "We can disrupt the biggest of the big: Symantec, HP, EMC."



THE INTERNET OF EVERYTHING

presents

the last traffic jam

We're building the Internet of Everything for connected cities. So smarter cars and roads equipped with sensors will use our highly secure cloud to keep traffic moving.

It's a greener, safer, easier future. Where the roads always flow.

cisco.com/thelasttrafficjam



TOMORROW starts here

@2015 Cisco and/or its affiliates. All rights reserved.

fered \$100 million for the company. McChord, who owned 100% of Datto at the time, passed. He wasn't done. Instead he raised \$25 million from General Catalyst Partners in the fall of 2013. The deal brought Paul Sagan (former CEO of Akamai) and Steve Herrod (former CTO of VMware) onto its board to help turn scrappy Datto into a billion-dollar business. "We can disrupt the biggest of the big-Symantec, HP, EMC," says McChord. "We're esoteric and crazy, but that's the goal."

McChord got where he is by giving small businesses (law firms, engineering shops, dentists' offices) the type of bulletproof backup that was available only to big corporations. The hardware and software built by Datto can capture a snapshot of a company's entire IT system as often as every five minutes. Since the system sits on the customer's premises and in the cloud, the company can get back up and running from anywhere as long as it has an Internet connection. Datto won't comment on pricing, but a partner says it costs about \$350 a month and \$2,800 up front for one terabyte of data. When the massive tornado tore through Joplin, Mo. in 2011, Datto instantly retrieved local hospitals' access to medical records. After Hurricane Sandy swamped the system of New York hedge fund Richmond Hill, Datto had it back in the market in minutes. "Austin told small companies, 'Just pay me a subscription, and I'll take care of all the complexity," says General Catalyst's Sagan. "He reached a market no one had talked to before."

McChord has always been a tinkerer. At middle school in Newtown, Conn. he constructed Rube Goldberg machines. McChord built his high school's video-editing software and repaired TVs he dug up from the town dump. He studied electrical engineering at the Rochester Institute of Technology but found it too easy and switched to bioinformatics, a mash-up of computer science and biology.

In the summer of 2007 McChord started making his own data backup devices, hotgluing Linksys boards and writing software in the basement of his dad's engineering firm. A 2008 article in Gizmodo attracted the first customers. Next he built a system that lets you synch data between two computers (think Dropbox without the Cloud). He racked up \$80,000 in credit card debt to buy two booths at the big CES trade show in Las Vegas. A distributor for Best Buy ordered 2,000 devices-on consignment. McChord was still building them by hand and was awash in debt. "I wasn't sleeping. I was having chest pains," he says. "I thought I had a heart problem, but it was all in my head."

Unable to fulfill the order, Mc-Chord simply stopped chasing the consumer market and searched for a business product he could sell for recurring cash revenue. He found a Zenith InfoTech backup system that ran Windows and built a better version that ran on Linux. Marketing to millions of small businesses is messy, so McChord focused on a few resellers to hawk the new product. By the end of 2009 he was doing \$70,000 in monthly sales and hit a total of \$3 million for 2010.

Then disaster struck. McChord released a new product called Aurora that could restore down systems in about an hour. It worked great on new computers but crashed old ones. Every sale created a customer service problem. He had to design a new product from scratch while selling the flawed system to meet payroll. A few months later he released Siris, which cut recovery time to six seconds. Customers who had bought the bad system got a free upgrade. Sales hit \$9 million in 2011 and \$25 million in 2012.

The \$100 million buyout offer came at McChord in early 2013. He was torn. "It was pretty clear their plan was to dismantle the company. I didn't want to see people laid off," he says. "I passed. I have a rare opportunity, and it seemed funny not to follow it all the way."

That means going after more forms of data. In December McChord purchased Backupify, a startup in Cambridge, Mass. that backs up data in cloud apps such as Salesforce and Google Apps. "You don't have to build a Snapchat to be a billionaire," says Mc-Chord. "Instead you go after a product, do it 30% better, 10% cheaper and build an incredibly valuable business."

GADGETS WE LOVE



SONIC BOOM

When you're on the road and in dire need of Led Zeppelin II to calm your nerves at the end of a harried day, tinny sound just won't do. Logitech's UE Mini Boom (\$99.99; logitech.com) sets the standard for portable, minusculebut-powerful Bluetooth speakers. Small enough to fit in the palm of your hand, it kicks out crisp sound that easily fills a hotel room (or camper van, if you're roughing it). No separate app or software is needed. It puts out a surprising amount of bass, too, for something so little. Stow it in your carry-on: You are now free to—what's the phrase?-ramble on.

FINAL THOUGHT



🗱 "Plan for what is difficult while it is easy; do what is great while it is small." 🗕 💵 📆









Jamie Miller GE



Harold Hamm Continental Resources



Rahm Emanuwel Mayor, City of Chicago Case Foundation



Steve Case

hanks to a new generation of pragmatic, tested leaders in industry, finance, education and government, the nation's industrial core is rebounding—and creating unprecedented business opportunities across America's heartland.

Forbes Reinventing America Summit is your best chance for meeting—and profiting from—the people leading the next great wave of American industrial innovation.

Attendance is limited. Please join us as we continue to create an unparalleled network for creating economic growth across the region—a cross-border, cross-industry gathering of investors, inventors, entrepreneurs, CEOs, industry captains and policy makers.

FOR MORE INFORMATION ON HOW TO PARTICIPATE VISIT FORBES.COM/CONFERENCES





ENTREPRENEURS

TURNAROUND



Garbage Into Gold

Trex had the benefits of a monopoly—along with the arrogance that almost killed it. Ron Kaplan saved the synthetic-decking pioneer by treating it like a startup.

BY BRIAN SOLOMON

hen Ron Kaplan took over as CEO of Trex in January 2008, he knew the composite wood decking company was in a death spiral of quality problems, falling sales and widening losses. The previous year Trex had lost \$76 million on \$329 million in sales and its debt had ballooned to \$134 million.

What Kaplan didn't know until a board

meeting on his second day as CEO was that Trex's abysmal debt-to-earnings ratio violated its bank covenants—putting it on the precipice of bankruptcy. He hustled to meet face-to-face with the president of one bank and issued a challenge: "I said, 'Do you want to run the place, or do you want me to run it?""

Trex's creditors deferred to Kaplan's 30 years of manufacturing experience, a decision that likely saved the company. Sales aren't that much higher than when Kaplan took over-\$381 million over the past four quarters—but it now shows a profit of \$51 million. Its debt load? Zero. And Wall Street has taken notice: Though Trex stock plummeted 83% between 2005 and 2007, it's up more than 900% since Kaplan came aboard. "It's the most successful, extensive turnaround of a company that I've seen in the building materials space," says Trey Grooms, managing director of equity research at Stephens.

So what happened? It's a classic case of focus. Trex lost it, foolishly thinking that a virtual monopoly meant it had no pressure to maintain quality. Kaplan has used culture and the product itself to get it back.

Trex, after all, basically invented synthetic decking. In the '90s a bunch of Mobil Oil engineers figured out how to make decking out of plastic waste and wood scraps, creating a composite that wouldn't rot or splinter. Today Trex claims its decking will last 25 years without staining or fading, versus pressure-treated lumber, which requires yearly maintenance and lasts 7 years on average.

Sizing up the outdoor decking industry-then a \$2 billion market, now \$7 billion—four Mobil executives saw the larger opportunity, buying the unit from the parent company in 1996 and then rapidly expanding. Between 1998 and 2004 sales surged from \$47 million to \$254 million and after the company went public in 1999 the stock raced up in lockstep.

Controlling 90% of their market, they attempted to goose margins further. Big mistake. If you visit Trex's headquarters in Winchester, Va., in the foothills of the Shenandoah Mountains, it's immediately obvious what its key component is: trash. Giant bales of plastic bags arrive by the truckload every day, complete with food detritus and supermarket logos. That garbage is spun into gold: The $\frac{1}{8}$ bales of plastic are heated and combined with industrial wood shavings to make the com-





Capital Markets*

When you need someone to strategize with, we'll be ready to talk. Our relationship managers take the time to learn your business and gain a deeper understanding of your expansion goals. We've successfully partnered with mid-sized to large corporations to help them meet their global business needs. With our full suite of products backed by our time-tested strength and stability, we've never been more ready to support your business today and for years to come. To learn more about how our capabilities can work for you, visit national.wellsfargobank.com/F12.

Together we'll go far



* Investment and insurance products: NOT FDIC-Insured • NO Bank Guarantee • MAY Lose Value

Wells Fargo Asset Management is a trade name used by the asset management businesses of Wells Fargo & Company, Certain investments are distributed by Wells Fargo Funds Distributor, LLC, Member FINRA/SIPC, a subsidiary of Wells Fargo & Company.

² Insurance products and services are offered through non-bank affiliates of Wells Fargo & Company including Wells Fargo Insurance Inc. and Wells Fargo Insurance Services USA, Inc.

³ Wells Fargo Securities is the trade name for the capital markets and investment banking services of Wells Fargo & Company and its subsidiaries, including Wells Fargo Securities, LLC, a member of FINRA, NYSE, NFA and SIPC, Wells Fargo Institutional Securities, LLC, a member of FINRA, NFA and SIPC and Wells Fargo Bank, N.A.

^{© 2015} Wells Fargo Bank, N.A. All rights reserved. Deposit products offered by Wells Fargo Bank, N.A. Member FDIC. Deposits held in non-U.S. branches are not FDIC insured. WCS-1228981 3/15

posite deck boards. But in 2003 management tried to lower costs by buying lower grades of plastic—yes, there's a quality hierarchy in retail bags—and the results were dismal.

Customers saw their new deck surfaces deteriorate, and they started filing lawsuits (Trex settled in 2010 and still pays to replace defective decks). New competitors like Fiberon and AZEK stepped in, introducing more durable products. Even after two members of Trex's original management team came out of retirement to try to fix operations, the damage was done. Trex's market share had fallen to 30%, and the cure proved as bad as the disease, as a decision to swell the labor force to monitor quality by hand also swelled costs, throwing the company into a loss.

Enter Kaplan. "We knew almost immediately Ron was the guy," says Frank Merlotti Jr., Trex board member since 2006. "He had a certain confidence and calmness—a guy who knows what he wants and can get everyone marching in the same direction."

Raised in a family of military veterans and armed with a Wharton M.B.A., Kaplan had spent 26 years at Harsco, where he managed factories for propane tanks and high-pressure cylinders and demonstrated a certain coldheartedness, culling employees as needed.

His take-no-prisoners approach proved shock therapy for Trex's collegial culture. On a Friday early in his tenure he pledged not to alter the lax dress code—before noting he would be making final decisions the following Monday about which executives deserved to stay. "Neiman Marcus had its best weekend ever," he jokes.

The executives should've saved their money. He axed 10 of his 11 vice presidents, along with around 30 managers, including one whose entire job was overseeing charitable donations. "I didn't think a company in a death spiral needed a senior executive in charge of giving away money," shrugs Kaplan, a gruff 63-year-old with a deliberate, almost robotic gait. Those executive offices have been sublet to an X-ray imaging center and a physical therapy clinic. And it wasn't

just managers. Automation improvements at the factories eliminated another 30% of full-time manufacturing workers in 2008. The survivors were incentivized: Managers earn bonuses based on the company's financial performance, while factory workers can boost their income by up to 15% by hitting targets for production costs and returns.

The culture now reset, Kaplan went to the core of his problem: the product. To regain market share, he introduced a new line with the kind of innovation that people had originally associated with Trex. The Transcend line was the first major composite board encased in a hard shell. As a result the product was both more resilient and more woodlike in appearance.

The tougher exterior enabled the company to offer a 25-year warranty, which has allowed it to charge more. Where Trex boards previously sold for \$2 to \$3 per foot, prices now reach \$3.75. "Millennials aren't like the Baby Boomer generation," says Adam Zambanini, vice president of marketing. "They don't want the maintenance."

Even with higher-price products, Trex is back to owning 40% of the composite market. And Kaplan intends to expand beyond catering to the beer-and-grill crowd. "One way to look at Trex is as a decking and railing company," says Kaplan. "Another way to look at it is as a recycling and extrusion company."

In order to get the plastic it needs, Trex has to accept all of the polyethylene that retailers like Wal-Mart send. That means it has a lot of surplus. Rather than resell it at cost, Kaplan is developing other products, starting with tiny polyethylene pellets that can replace virgin resin for plastic producers.

Why get into plastic commodities? Kaplan thinks his formula can work in any number of areas. This seems to risk a distraction similar to the one that prompted Trex's collapse in the first place. But such are the perks of being the company savior: When you're playing with house money—and the balance sheet remains debt-free—investors are willing to let you roll the dice.

GO **CONSIDER STOP**

TO MARKET. TO MARKET

Want in on the listings action? IPO ETF manager **Renaissance Capital** looks at what recent industry performance (through Feb. 5) augurs for the rest of 2015.

HEALTH CARE

Since 2013 the sector has had 111 offerings, topping tech. With growing investor interest in genetic immunotherapy, health care IPOs pulled in \$9.1 billion in the last year, with an average return of 32%.

CONSUMER

GoPro and Shake Shack drew attention, boosting sector returns to 43%-yet there were only 15 such deals in the last 12 months. But more consumer spending money "means higher post-IPO valuations" for deals that do happen, says Renaissance principal Kathleen Smith.

ENERGY

Surprised? With 30 offerings in 2014, the industry had its busiest year since 2007, but returns were down 6%. At least your fill-up is cheap.



FINAL THOUGHT

"It is not a daily increase, but a daily decrease. Hack away at the inessentials." -BRUCE LEE



Munificent Returns

William Heyman gave up a high-profile Wall Street career to become one of the gray men of insurance. Travelers shareholders couldn't be happier.

BY NATHAN VARDI

f you feel at all bewildered by the wild and sometimes bizarre machinations of the current market, take comfort that a guy who has spent nearly four decades on Wall Street managing everything from hedge funds to insurance assets feels the same way. "You have equities at historically high prices and fixed income is priced as if there were a global depression. Interest rates look like they did in the 1930s," says William Heyman."I get up every morning and by 8:30 my head is spinning."

But Heyman, the 66-year-old vice chairman and chief investment officer of New York City's Travelers, has been able to prosper by sticking to a simple rule. "Ninety-nine percent of the time the proper reaction to any new piece of information is to file it away mentally and do just what you were doing before," he says.

Heyman is an uncelebrated breed of investor. From a gray steel office building in Midtown he quietly runs the \$76 billion portfolio of Travelers, the only insurance company in the Dow Jones industrial average.

Over the years many insurance companies have been run as if they were private funds, businesses that existed to give their top executives a cheap source of capital (i.e., premium income) to pursue corporate ambitions and to invest boldly. Risk-averse Warren Buffett through Berkshire Hathaway has been the most successful in leveraging his significant insurance assets in this way. Others, like Hank Greenberg of AIG, which became mired in subprime-mortgage-related problems, and Fred Carr of Executive Life, perhaps the biggest junk bond junkie of the Milken era, saw their premium-fueled empires collapse.

Travelers' Heyman may be the most conservative of the bunch. He insists that his main purpose is to support his company's

writing of insurance, where the real returns are made by prudently investing the assets generated by the underwriting activities. Leading up to the financial crisis, for example, he held a tax-efficient portfolio packed with municipal bonds that coasted through the meltdown unscathed.

In fact, over the last ten years Travelers stock has returned 267%, compared with the 109% return of the Standard & Poor's 500 and the 156% return of Berkshire Hathaway. Travelers is not the only insurer that has adopted this strategy, but it's arguably the most successful and prominent.

"I think Bill has proven time and time again that he not only takes the long view but that he has the discipline and strength of conviction to avoid the temptation—and withstand the pressure—to invest in the latest 'new thing' or to follow the masses," says Ajit Jain, who runs Berkshire Hathaway's big reinsurance group. "Even during extended periods of time when the masses are enjoying considerable success."

What happens when institutional investors urge Heyman to buy more equities and dial up the risk? Those are short conversations. "My job is to keep a company with 150 years of history off the ash heap," says Heyman. "Some might consider that a trivial goal, but think about how many people couldn't pull it off the last time around—and I think there may still be a next time around."

If those sound like the words of a sheepish investor, think again. Heyman has been around the block on Wall Street and understands risk. He's the son of George Heyman Jr., one of the early prominent arbitrage investors who ran Abraham & Co., competing with Gus Levy's Goldman Sachs in the 1960s. He is married to Katherine "Wendy" Dietze,







Four decades on Wall Street has taught Travelers' William Heyman to ignore 99% of the noise.

the former chief operating officer of Credit Suisse First Boston's investment bank.

As a child Heyman was surrounded by legendary investors like Laurence Tisch and Benjamin Graham, the father of value investing who rode the suburban train from Scarsdale, N.Y. with Heyman's dad. While at Princeton Heyman spent two summers as a clerk on the New York Stock Exchange working for specialists Donald Stone and Bernard "Bunny" Lasker, the former chairman of the Big Board. "I think there is a benefit in growing up around smart guys, principally because of what you learn about risk, what they think is risky and less risky," says Heyman.

At the age of 31, in 1979, the Harvard Law graduate took a calculated gamble, quitting his

career as a lawyer and starting one of the early risk arbitrage hedge funds, Mercury Securities. Heyman was inspired by Ivan Boesky's model of arb investing through a partnership that was not a member of the New York Stock Exchange. But that is where the similarities end. In fact, once on a trip to California to meet with his happy clients, Heyman remembers bumping into Boesky at the Beverly Hills Hotel and being admonished by him, "The only time you need to see the clients is when things are going badly," according to Heyman.

But while Boesky was headed to Lompoc prison for insider trading, Heyman's arbitrage firm rode out the stock market crash of 1987 and recovered all its losses within six months. A year later Heyman left and went to work for Sandy Weill, heading up Smith Barney's arbitrage department. Then he spent two years as the director of the Securities & Exchange Commission's market regulation division, lured by his former law firm office mate, then SEC chairman Richard Breeden.

By the mid-1990s Heyman was back working for Weill, starting Tribeca Investments, the internal hedge fund that invested some of Travelers' premium income. Ultimately he rose to chairman of Citigroup Investments, which managed more than \$100 billion. Tribeca Investments traded options and distressed securities, but the big money maker was convertible hedging, and Hevman's returns were excellent. But Heyman never felt that Citi's top brass gave him his due respect, so in the spring of 2002 he quit without another job. "I was never going to be on the inside there," says Heyman.

Soon after he left Citi, Heyman was walking to lunch in midtown when out of nowhere Jay Fishman, the CEO of St. Paul Cos. and Citi's former co-chief operating officer, jumped out of a car and suggested Heyman come to work for him. Heyman would be named chief investment officer, and within two years St. Paul acquired Travelers' assets after Citi spun them off. "The luckiest thing in my entire career happened," says Heyman.

If Fishman is the architect of Travelers' seemingly unshakable success, Heyman is his most trusted consigliere. "An arbitrage mentality is somebody who can think rigorously about risk and reward probabilities, and that is what Bill grew up doing," says former Treasury Secretary Robert Rubin,

who started his finance career as a Goldman Sachs arbitrageur. "Applying that mind-set more broadly to the full range of asset-liability matches is logical." When he first got to St. Paul, Heyman ditched much of its equity investments, including \$800 million in venture capital. Going into 2008 Heyman held few CDOs and almost none of the toxic acronyms held by bailout recipients AIG or The Hartford. But through thick and thin Travelers never stopped repurchasing its stock, a key component of its success.

The financial crisis unleashed tremendous deflationary forces, and central banks and governments responded with inflationary policies. The percentage bet has always been in favor of inflation because "when government wants inflation it usually gets it," says Heyman. Nevertheless, deflation stubbornly remains a threat. Heyman has tried to position Travelers' portfolio so that it prospers whichever way things break. He's got 90% of his assets in bonds. Yes, he's matching his investment assets with his insurance liabilities, but he has kept duration down to 3.5 years while not reaching for yield and working to keep credit quality pristine. "If things break in favor of inflation, lower duration means you get your money back a little sooner to reinvest at higher rates," says Heyman. "If things break the other way, it wouldn't really matter that your duration is a little lowercredit quality would trump everything."

With many municipalities crushed by rising entitlements and underfunded pensions, and cities like Detroit struggling to stay solvent, it might seem strange that Heyman is more exposed to the tax-exempt market than any of his competitors. He's got \$34 billion, or nearly half of his portfolio, in municipal bonds. In fact, Heyman was buying munis while Meredith Whitney was crying wolf on 60 Minutes in late 2010, and he is still buying them today. Last year was a stellar one for munis-the S&P Municipal Bond index was up 9%. "I don't meddle" with Bill's portfolio, says Fishman. "One thing he has taught me is that in the taxable securities arena we accept that no two securities are the same. The same thing holds true, even more so, in tax-frees."

About \$8 billion of Heyman's munis are prerefunded—refinanced with the proceeds put in U.S. Treasurys. He is picky; of the tens of thousands of municipal issuers out there he owns only 800 or so. He focuses on credits with contractual obligations, making sure he knows where the principal and interest money is coming from and what the legal protections are. He likes the bonds issued by the Orange County, N.C. water and sewer authority and the Portland, Ore. water system because both are situated in good economies and offer protections like rate covenants. But Heyman wouldn't go near the highly rated bonds recently sold by rich Vadnais Heights, Minn., even though he loves the suburb's credit, because the bonds are backed only by revenues from a new ice arena.

Heyman has been a big buyer of school district bonds and owns some \$8 billion of those. "We like them because they are secured by taxes that people have a high incentive to pay," says Heyman. "We pick school districts where people are serious about educating their kids." Heyman concedes you need to be careful. Many school districts pay into poorly funded multiparty municipal pension plans. But even there he'll make exceptions. He owns bonds of the New Trier school district in affluent Winnetka, Ill., despite the fact that it contributes to Illinois' underfunded pension plan. He favors districts like Elmbrook, a wealthy tax base west of Milwaukee with low debt and a wellfunded teachers' pension, and the Rochester (Minn.) independent school district, which enjoys stable finances and a rich tax base grounded by the Mayo Clinic. "Given the size of his portfolio and the skill with which he has managed it, he is a legendary muni investor," says George Walker, chief of fund company Neuberger Berman, which owns about \$700 million of Travelers shares.

As for the 10% of his portfolio in equities, Heyman has positions in private equity and real estate funds. He claims not to be troubled by largely missing the stock market's run-up in recent years and has a disdain for most hedge funds. Says Heyman, "It's great that there are institutions who will pay 2% for an 8% return. We are not one of them."

GO CONSIDER **STOP**



STOCKING UP **David Herro has helmed** the \$27.8 billion **Oakmark International** Fund since 1992, scouring the world for cheap stocks with big potential. What's his outlook as winter ebbs?

CREDIT SUISSE

Had a brutal start to 2015, but fundamentals are moving in its favor as it gains assets and derisks. Plus, its stock trades below book value.

WPP

Still the world's largest ad agency after the ballyhooed Omnicom/Publicis merger evaporated. It's wellpositioned to capitalize on an emerging-market recovery, but at almost 18 times earnings it looks fairly valued. Hold off on additional exposure.

TESCO

The battered U.K. grocery chain has new management but no clear plan after last year's accounting blunders. Moody's has cut its rating to junk; its balance sheet remains distressed. Yet its stock is 40% above its lows. Shop elsewhere.

FINAL THOUGHT



"Variety may be the spice of life, but consistency pays the bills." -DOUG COOPER



TECH'S SNEAKY MARKET DIVIDEND



READERS REGULARLY ask what can go wrong but almost never what could positively surprise. The elephant in our world's living room is, simply, technology. Not only is Moore's Law, the North Star of semiconductors, vibrant and likely intact for fully another decade, but silently other technologies are bulging, too.

Moore's Law-which, as you know, posits that integrated circuit density doubles roughly every two years while

costs halve—is the single most powerful positive economic force of our adult lifetimes, akin to the steam engine's 19th-century impact. Little-known Koomey's Law moves even faster now, predicting that the battery needed for a fixed level of computing will shrink greatly every decade—a process incomprehensible to most, yet central to improving our gadgets.

Next: the Shannon-Hartley theorem, moving almost as fast, divining maximum data transmission speed over a communications channel, defining telecom's maximum capability via fiber optics. Slightly slower is Kryder's Law of magnetic memory—behind most of cloud computing and more. Finally, faster-paced than any of them: DNA sequencing, allowing an unfathomable future in customized medications.

PRODUCTIVITY WILL RISE AS THIS BULL MARKET ENDURES

All five concepts are colliding into one another in ways hard to imagine. While I like tech stocks, the big beneficiaries will be the rest of us—and firms that derive increased productivity or conception of innovative products and services.

Investors covet past improvements but also always believe pricing unimaginable future creativity and efficiency gains is Pollyannaish. And they're always wrong. Bet on it. Productivity will rise as this bull market endures. Here are five good stocks that should all see a markedly better future during that time.

Minnetonka, Minn.-based UNITEDHEALTH GROUP (UNH, 108) is a slowgrowth, high-quality way to angle the coming Baby Boomer health care cost spiral. It's both America's largest single health carrier (the one my firm chose for its needs) and a leading provider of technology and services to the broader health care universe. It sells at 16 times my 2015 earnings estimate with a 1.3% dividend yield.

Drug giant PFIZER (PFE, 33) got whacked last year by stagnant sales, falling earnings and its embarrassing failure to acquire AstraZeneca. Yet its basics are sound, drug line exceptionally diversified and growth potential reasonable. Despite a \$209 billion market cap, it's cheap and could itself be acquired if the stock doesn't gallop. Buy it first at 14 times my 2015 earnings estimate with a 3.2% dividend yield.

SANDS CHINA (SCHYY, 48), the Macau arm of Sheldon Adelson's Las Vegas Sands (LVS) gambling and resort empire, has plunged 42% since last February. Spanning huge hotel, convention and entertainment venues in China's only legal gambling region-and arguably the world's largest inhabited building, the Venetian Macao-it has big-time profit and stock volatility. It's now doubly hit by China's crackdown on alleged gambling corruption and the announced March departure of CEO Edward Tracy. Bet on Adelson's ability and Asians reflocking to gambling as an opportunity. It sells at 12 times my 2015 earnings guesstimate.

France's AIRBUS (EADSY, 14) also plunged in 2014, off 31% since January. While of lesser quality than Boeing, it's basically 40% of a big-plane duopoly. With there being only two, buyers need it. In oligopolies of any form when one stock lags badly it almost always bounces back heavily. So buy it at 11 times my 2015 earnings estimate and 60% of annual sales.

I haven't recommended India's large IT service provider INFOSYS (INFY, 36) since July 2009 at 17.5. It spikes to a new peak (and then falls back) about every three years. It's overdue now, rising, and earnings are on a roll. Expect 2015 to be its year. It sells at nine times my March 2016 earnings estimate, with a 1.7% dividend yield. 🖪

MONEY MANAGER KEN FISHER'S LATEST BOOK IS MARKETS NEVER FORGET (BUT PEOPLE DO) (JOHN WILEY, 2011). VISIT HIS HOME PAGE AT WWW.FORBES.COM/FISHER

America's PremierExperts® presents

We Asked The World's Leading Professionals For Their Top Tips On

${\sf HEALTH}, {\sf WEALTH} \ {\it \&SUCCESS}$

To Help You Thrive in the **New Year & Beyond** and Here's What They Had to Say...



der | President of A.R.I.S., Inc.

in 2013, Robert Lenzner stated, on Forbes.com, the only reason the stock market was up since 2009 was because Ben Bernanke of the Fed, was purchasing \$85 Billion per month in Treasuries and Mortgages. The government began reducing QE3, which ended as of October 29th, 2014! What does this mean for your investments and your piece of mind? Protect your hard-earned retirement!



rammy Lane, CPA, CA | CEO, She's Got Profits[™] Passion for what you do and making a difference with your work absolutely matter, but if your business ign't no Stable matter, but if your business isn't profitable, you won't get to help people doing what you love for very long! Get the help you need to strategically plan YOUR Pathway to Profits so you can create a customized system for bringing in clients automatically online and make a bigger difference creating the business of your dreams



Dr. Emmett Blahnik | CEO of Next Level Health, LLC, Author of "Simply Eat Real Foods™ Author | Speaker | Entrepreneur | Coach and an Official Doctor to TEAMUSA.

Your greatest wealth is your health and your best investment is your health investment. This is your year to re-prioritize your most valuable asset—your health. If you are more stressed and depressed than happy, or more busy and overweight than healthy, you certainly need to refocus. One simple and easy way to change today is to SERFM "Simply Eat REAL Foods" "



Mike Lawrence | Founder and CEO. Amp Marketing
The only true financial security lies in your ability to produce. No matter what your industry or position, always strive to be a top performer. Become an invaluable asset to your company and the clients you serve. In your journey to the top, always remember it is a marathon-not a sprint. It is a process-not an event.



Shenia Marie Dancy, Esq. | Founder and CEO, Law Office of Shenia M. Dancy Founder and CEO of Beyond The Bedroom and The Courtroom, LLC

Create unlimited opportunities, and strive to master the ability to Live Wisely, to Love Cautiously and to Laugh Abundantly!



nbie Mlambo | CEO, Equanimity LLC

Challenge yourself to anticipate and adapt to change better and faster. Whether it is technological, economic, demographic, or lifestyle change, transition is a part of our world. Remain positive, and treat disruptions as opportunities rather than roadblocks. Being proactive allows you to remain relevant in your field, positions you for success, and sets you apart from your competition.



r Davis, Jr. MBA, ALM | President & CEO, TBK Ventures, Inc.

Elmer Davis, Jr. MBA, ALM President NCBO, IBK Ventures. In:
In the new economy 'intrapreneuring' is key. While working in larger organizations, you are 'the brand.' You're essentially in business for yourself...but not by yourself. Develop your skills to achieve excellence. Keep your 'day job' and resources, as you develop an exit strategy with your own projects. When the time is right, seamlessly transition into ownership to build your profits



Josh Painter| Broker, Pacific Lifestyles Realty
If you want to be in business long-term, don't prioritize money. Instead, focus
on building relationships. If you can differentiate yourself by truly caring about
your clients' best interests and proving yourself trustworthy, you will become invaluable to them. Wealth and happiness come easier when you and your clients value and respect each other.



es E. Fox | President, Fox Financial Group, Ltd.

What is trending for many pre and post retirees is the firestorm of Guaranteed Lifetime Income Annuities. Many of the 78 million baby boomers do not have large pensions like their parents had, and people are now taking responsibility for their own retirement future through these plans. Unlike many investments, consumers can receive a monthly check for as long as they, and their spouses. live–regardless of market returns.



od Polston | President & Founder, The Law Offices of Rod Polston

Live your life and set your goals as if there are no barriers on how successful you can be. There are NO barriers to your success, except the ones you create in your mind. Set your yearly goals then break them down to monthly, weekly and daily goals. Look at them at the start of each day and watch out-your life is getting ready to change!



ony Garrett | Inspirational Speaker, Author & Innovator, Global Insight Productions The greatest leaders and teachers in our world understand that being average is simply not good enough. Our world needs for you to make excellence a guiding foundational principle. Our children need to be inspired by courageous, creative individuals who are ready to expand their consciousness and ascend to another level of existence. Live life with Purpose, Passion and unforgettable Presence.



L. Robertson | President, The Corporation for Social Security Claiming Strategies In this age of specialization, nothing is more valuable than expertise. As baby boomers continue to exit the work force, their decisions, relative to how and when they elect to take their Social Security retirement benefits, may be the determining factor in the success or failure of their retirement plan. Working with our network of certified experts will set you on the course to comfort!



D<mark>avid C. Gibson, CFP</mark>] Gibson Financial Services More and more corporations are reducing or eliminating defined benefit plans People now have to adapt their retirement strategies to structure their 401k and IRAs to guarantee lifetime income streams, which are no longer guaranteed by employers. As a result the risk and responsibility of retirement has shifted from the capable hands of corporations to the unprepared hands of



IShannon | Director, Pinnacie Health Clinic President, Australian Complementary Medicine Association alth and self-care is critical in the New Year. Devoting some time to ensuring that you are healthy is one of the most important decisions you'll ever make. Let me tell you, it impacts everything! Oxygen, water, greens and a high vegetable diet are critical for optimum performance. Care for yourself and bring those results to others, and the rest will follow.



yton Hart | CEO, Diverse Technology Solutions Inc.

Great leaders surround themselves with people far superior to their intellect and don't let their ego get in the way of creativity. Provide company direction and focus, but don't stunt the ability of your team to bring new ideas to the table. Motivate through the freedom of creativity and trust your instincts while you manage risk and decide on which creative solutions to implement.



Clarity is power. People don't just stumble upon financial success and stay there. Before you begin randomly selecting investments, you need to get massive clarity on where you are financially and where you want to be. Then, you can work with industry experts to help determine the best vehicles to help you

achieve your outcome



John Holt | President, Holt Electrical Contractors, Inc.
As we embark on a new year, take the opportunity to reflect on the past and continue to believe in those that make your success possible. The culture created through communication, support and education is invaluable. Your employees and customers will be grateful and you will prosper in return.



Richard Tyler | President and CEO, Richard Tyler International, Inc.®

Look inward and ask yourself, 'Am I committed to success or just doing business as usual?' To be committed to success means to have mental determination to accept only excellence—no matter how difficult; no matter how uncomfortable; no matter how stressful. Remember, your success tomorrow is in direct proportion to your commitment to excellence today.

eh | Partner, Smart Money Financial Group & Turnkey Investment Fund



e A. Hoop, D.D.S. | Founder and CEO, Total Dental Solutions for Adults

With recent budget realities, more people are searching for ways to offset necessary and elective dental care costs. Direct Dental Savings is the new benchmark for patient-direct dental discount plans. By eliminating the predatory insurance company middleman, the DDS Plan can provide unlimited savings for ideal care with significantly less restrictions, fewer limitations, greater savings and allow for more covered procedures.



rger | President, Forest Hills Financial, Inc.

We live in a world of entitlement and excuses. If you want to be truly successful you must take ownership of what happens in your life, good and bad. Believe you are in charge of your destiny and your success will be so much greater than those blaming everyone else for their failures.

DOWN BUT NOT OUT SMALL CAPS



LAST YEAR WAS ANOTHER great one for large stocks. Unfortunately the high-growth small stocks I recommend in this column did poorly. In 2014 my column picks returned -1.8% after commissions versus a gain of 3.6% for a portfolio similarly invested in the Russell and 9.6% for the S&P 500. Indeed, the Russell 2000 returned just 4.9% in 2014, trailing large caps by the widest margin since 1998.

But given that small stocks have a long history of outperformance relative to large caps, it would be foolish to give up on them. Valuations for high-growth small caps have fallen 20% since January 2014 and are again below their long-term average levels. Small caps tend to fare better when GDP accelerates. Cheap oil will be the catalyst for earnings growth that I believe will produce better-than-expected GDP in 2015. And if you are worried about the strong dollar, keep in mind that small companies tend to have less currency exposure than multinationals. Here are four great candidates:

Santa Clara, Calif.'s INPHI (IPHI, 19) develops and sells high-speed analog and mixed-signal semiconductor systems to the communications, data center and computing markets. An explosion in data from

CHEAP OIL WILL FUEL GDP AND SMALL-COMPANY STOCKS

high-speed LTE communications is driving the need for faster fiber networks and faster communication within cloud data centers. Inphi product offerings, which expanded after its \$131 million acquisition of Cortina Systems last October, help move big data faster. About 75% of Inphi's business is booming and riding the wave of 100-gigabit optical network adoption. Expect revenues to grow 85% in 2015, both due to organic growth from 100G adoption and from the Cortina acquisition. Shares trade for 21 times forward earnings of \$0.90 per share.

Marietta, Ga.'s MIMEDX GROUP (MDXG, 8) develops patent-protected regenerative bio-implants and biomaterials from placentas. Mothers delivering full-term Caesarean section babies can elect in advance of delivery to donate the placenta in lieu of having it discarded as medical waste. MiMedx processes the placenta via a proprietary process

to produce a safe and effective implant. For example, its wound-care product EpiFix is a tissue graft used for the treatment of conditions like diabetic foot ulcers. MiMedx says EpiFix beats the competition in terms of efficacy, speed of healing and cost. MiMedx is growing revenues at 75% organically, and profits are growing even faster. The firm's large growth opportunity explains its steep valuation at 53 times my forward estimate of \$0.15 in earnings per share.

WAGEWORKS (WAGE, 59) provides on-demand administration solutions for programs like flexible spending accounts (FSAs) and health savings accounts (HSAs). These pretax programs are increasingly popular, and WageWorks benefits from growth in highdeductible health insurance plans, which are often paired with HSAs. I also expect growth in FSAs as well, as a recent change loosened the "use it or lose it" provision and now permits up to a \$500 carryover into the following year. Due to its highly predictable and recurring revenues, the San Mateo, Calif.based company's shares trade for 50 times my forward earnings-per-share estimate of \$1.12, which is for 30% growth.

Beijing's tarena international (tedu, 12) is a professional education provider primarily focused on information technology. Instructors deliver lectures from a classroom in Beijing that simulcast at its learning centers throughout China. Growth is being driven by additional learning centers and expansion into new verticals, such as digital arts. Shares trade for 19 times my forward earnings-pershare estimate of \$0.62, for 35% earnings

Among last year's picks hold on to LIGAND PHARMACEUTICALS (LGND), ZELTIQ AESTHETICS (ZLTQ), CHINA MOBILE GAMES (CMGE), SYNCHRONOSS TECHNOLO-GIES (SNCR) and DIPLOMAT PHARMACY (DPLO). Sell the others to make room for new ideas.



Get your free guide to tax-free municipal bonds.

Please call (800) 498-9084 right now.

Municipal Bonds Offer Three Big Advantages.

Advantage #1: The potential safety of principal.

If you're a prudent investor in need of investment income, you don't want to gamble with your precious nest egg. If you're nearing retirement or are already retired, you want to do everything you can to make sure your investments can support your retirement. That's why our free Bond Guide makes "must" reading.

Advantage #2: The potential for regular, predictable income.

When you invest in municipal bonds, you typically get interest payments every six months unless they get called or default. Because default rates for the investment-grade-rated bonds favored by Hennion & Walsh are historically low (according to Moody's 2012 research,*) you can enjoy a regular income stream in retirement. Please note that if a bond is called, any bond you may buy in the future with the proceeds, may earn more or less than the original called bond.

Advantage #3: The potential for tax-free income.

Good news! Income from municipal bonds is NOT subject to federal income tax and, depending on where you live, may also be exempt from state and local taxes.

About Hennion & Walsh

Since 1990, Hennion & Walsh has specialized in investment grade tax-free municipal bonds. The company supervises over \$2 billion in assets in over 15,000 accounts and provides individual investors with institutional quality service and personal attention.

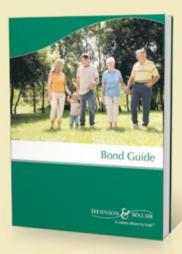


Dear Investor,

We urge you to call and get your free Bond Guide. Having tax-free municipal bonds as part of your portfolio can help get your investments back on track and put you on a path to achieving your investment goals. Getting your no-obligation guide could be the smartest investment decision you'll make.



© 2014 Hennion and Walsh. Securities offered through Hennion & Walsh Inc. Member of FINRA, SIPC. Investing in bonds involves risk including possible loss of principal. Income may be subject to state, local or federal alternative minimum tax. When interest rates rise, bond prices fall, and when interest rates fall, bond prices rise. *Source: Moody's Investor Service, March 7, 2012 "U.S. Municipal Bond Defaults and Recoveries. 1970-2011." Past performance is not guarantee of future results.



Here's just some of what you'll learn . . .

Why municipal bonds may deserve a place in your portfolio. (Page 1)

Why insured bonds often provide an extra degree of security. (Page 2)

Why municipal bonds can potentially provide safety of principal. (Page 3)

How municipal bonds can potentially provide tax-free income. (Page 3)

Strategies for smart bond investing. (Page 4)

Municipal bond facts every investor should know. (Page 4)

Plus lots more!

FREE Bond Guide

Without Cost or Obligation

CALL (800) 498-9084

(for fastest service, call between 8 a.m. and 6 p.m.)

Hennion & Walsh, Bond Guide Offer 2001 Route 46, Waterview Plaza Parsippany, NJ 07054

WHY YOU SHOULD PREFER PREFERREDS



AT LEAST ONCE A YEAR I review the market for preferred stocks to remind income investors that there is an alternative to bonds. Bonds currently have an interest rate cloud hanging over their future, yields are already meager and in the case of junk bonds high risk is a big worry.

Think of preferreds as the Rodney Dangerfield of investments; that's what makes them such a good buy. They cover seven varieties of securi-

ties that can be either debt or equity. They are particularly suited for individual investors because they're often too small for institutional investors who deal in million-dollar positions. However, when you ask your broker about them, you usually get a negative response. Most brokers don't understand these securities well enough to recommend them. This is compounded by the fact that many firms ban their sale by rank-and-file brokers because most preferreds are rated below investment grade. No brokerage firm wants to get tied up in client litigation in the event that one of those preferreds ends up in a bankruptcy. If you insist on investing in preferreds, many advisors will simply steer you into mutual funds, for a fee of course.

My advice is to ignore your broker and selectively buy preferred

ALL THE NEWS ABOUT FED RATE HIKES IS GREATLY EXAGGERATED

stocks directly. All the news about Fed rate hikes and their effect on long-term securities is greatly exaggerated. The hikes affect long rates only if our central bank begins selling off Treasurys and mortgages, and this is not even under discussion. When rate hikes come, they will affect short-term paper, probably in one or two 25-basis-point hikes.

Preferreds that pay 5.5% to 7.5% are likely to appreciate in 2015 because long rates will be driven down by the rising value of the dollar. That hurts international companies' earnings but brings a flood of carry trade and foreign money into the U.S. to invest for yield and currency gains. In fact, the real fear today is that declining oil prices will induce deflation, which also drives interest rates lower.

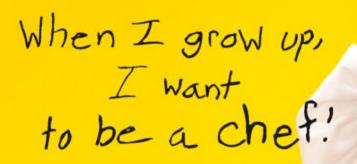
It is important to diversify your preferreds. Start with CHS INC. 6.75% PERPETUAL PREFERRED (CHSCM, 25), yielding 6.8% with no call until Sept. 30, 2024. I have been recommending securities of this unrated but well-run global agricultural cooperative for a decade. It's getting hard to find such high coupons with long call protection, and this one is eligible for the 15% tax rate on qualified dividend income (QDI).

For those wanting an investment-grade issue, look at renaissancere holdings, a Baa2/ BBB+/BBB-rated global property and casualty insurer. It has a 5.375% NONCUMULATIVE PERPETUAL PREFERRED (RNR E, 24) yielding 5.6% (QDI), callable in June 2018. A comparably rated bond currently yields less than 4%. Financial institution preferreds make up a large amount of the market, and here I recommend CAPITAL ONE FINANCIAL. This medium-size financial services company has a QDI-eligible 6.25% PERPETUAL PREFERRED (COF C, 25), which is rated Ba1/BB and callable in September 2019.

REITs are also a preferred play. I like **DIGITAL REALTY TRUST.** which owns data centers in 130 locations worldwide. Its 6.625% SERIES F PREFERRED (DLR F, 26) yields 6.5% and is rated Baa3/BB+. If you want a REIT with an equity play along with a preferred yield, look at EPR **PROPERTIES**, one of only a handful of attractive convertible preferreds. Its 9% PREFERRED (EPR E, 33) yields 6.9%, which is well above the 4.1% yield on the stock. Conversion won't happen until the common stock reaches \$83.11, up from a current \$64. That translates to a preferred redemption at \$37.50, which is not a bad call-away premium.

Now for my FORBES 2014 scorecard. Last February I began the year recommending 14 securities that, along with my other picks, returned a handsome 11.9% for the year, nearly doubling a benchmark return of 6.3%. One of my biggest losers was gold (GLD), recommended as a hedge against surprises. The surprises came late in the year, but gold has almost fully recovered so far in 2015 and looks better with each passing day. **F**

THOMAS KUHLENBECK FOR FORBES



Last year Sarah was too sick to dream.
She has Primary Immunodeficiency or PI.
Thanks to the Jeffrey Modell Foundation,
she was properly diagnosed and treated...
Now her future is sweet.

Jeffrey Modell Foundation

info4pi.org

25 years of helping children reach for their dreams

Saray

now I have a chance



Features March 2, 2015





BEDDEVE GYPERLO





The race to turn Elon Musk's vision for high-speed travel in steel tubes is officially on. Buckle up.

BY BRUCE UPBIN

PHOTOGRAPH BY JAMEL TOPPIN FOR FORBES

From startup to the speed of sound: Hyperloop Technologies' Brogan BamBrogan and Shervin Pishevar. Former SpaceX engineer Brogan BamBrogran (yes, that's his legal name) pulled out his iPad for a preview. Two business partners, the near-billionaire venture capitalist Shervin Pishevar and former White House deputy chief of staff Jim Messina, carefully studied the powerful senator's reaction. Even Mark Twain, a onetime riverboat

pilot whose portrait hung over Reid's desk, eyed the proceedings warily.

"What's that?" asked Reid, sitting up, animatedly pointing at the iPad. BamBrogan's home screen showed a photo of a desert plain with dazed and dusty people wandering around at sunrise.

"Er, that's Burning Man," the engineer responded, then clued in the 75-year-old politician to the techno-hippie carnival that takes place pre-Labor Day in the Black Rock Desert of Reid's home state of Nevada.

BamBrogan's formal presentation was even wilder, a vision for efficiently moving people or cargo all over the Southwest, to start, and the world, eventually, at rates approaching the speed of sound.

At the end of the 60-minute pitch Reid sat back and smiled. That's when Pishevar leaned in, asking the senator to introduce him to a Nevada businessman who owned a 150-mile right of way from Vegas to California for a high-speed train. Reid said he would, and they shook on it. And thus fell another obstacle in the group's fast-moving efforts to actualize what until recently had seemed not much more than geek fantasy: the hyperloop.

You remember the hyperloop, don't you? It's that farout idea billionaire industrialist Elon Musk proposed in a 58-page white paper in August 2013 for a vacuum-tube transport network that could hurtle passengers from San Francisco to Los Angeles at 760 miles an hour. Laughed off as science fiction, it is as of today an actual industry with three legitimate groups pushing it forward, including Hyperloop Technologies, the team in Harry Reid's office. They emerge from "stealth" mode with this article, armed with an \$8.5 million war chest and plans for a \$80 million round later this year. "We have the team, the tools and the technology," says BamBrogan. "We can do this." The 21st-

century space race is on.

It's hard to overstate how early this all is. There are dozens of engineering and logistical challenges that need solving, from earthquake-proofing to rights-of-way to alleviating the barf factor that comes with flying through a tube near the speed of sound.

Yet it's equally hard to overstate how dramatically the hyperloop could change the world. The first four modes of modern transportation-boats, trains, motor vehicles and airplanes—brought progress and prosperity. They also brought pollution, congestion, delay and death. The hyperloop, which Musk dubs "the fifth mode," would be as fast as a plane, cheaper than a train and continuously available in any weather while emitting no carbon from the tailpipe. If people could get from Los Angeles to Las Vegas in 20 minutes, or New York to Philly in 10, cities become metro stops and borders evaporate, along with housing price imbalances and overcrowding.

The only thing this geek fantasy is missing: Musk. With his hands full simultaneously running Tesla Motors and SpaceX, he's left it to others to make his theory a reality. He declined to comment for this story. But his fingerprints are on each of the groups vying to build the hyperloop, even though they couldn't

COME ON PEOPLE, WE CAN DO THIS!

The \$40 million per mile cost of a hyperloop is in line with other giant transportation projects.



Interstate Highway System U.S.

TOTAL COST/COST PER MILE \$478 billion/\$10 million

COMPLETION DATE

1992



National Trunk Highway System
China

TOTAL COST/COST PER MILE

\$140 billion/\$6.5 million

COMPLETION DATE

2007



Chuo Shinkansen

Japan TOTAL COST/COST PER MILE

\$88.5 billion/\$497 million

COMPLETION DATE

2045



Beijing-Shanghai High Speed Rail

TOTAL COST/COST PER MILE

\$33.1 billion/\$40.4 million

COMPLETION DATE

2011



Channel Tunnel
U.K.-France

TOTAL COST/COST PER MILE

\$15.4 billion/\$490 million

COMPLETION DATE

1994



Oresund Bridge Denmark-Norway

TOTAL COST/COST PER MILE

\$7.8 billion/\$1 billion

COMPLETION DATE 2000

'ALL FIGURES ARE IN CONSTANT U.S. DOLLARS

HOW THE HYPERLOOP WORKS

Elon Musk said that if the Concorde, a railgun and an air-hockey table had a three-way, the hyperloop would be the love child. Here's a look inside Hyperloop Tech's high-speed cargo pod.

COMPRESSOR Mounting a giant compressor fan on the front of the capsule is what makes the hyperloop possible, transferring huge volumes of air away from the nose. Without it, the pod would be pushing all the air in front of it, like a syringe, or you'd have to spend big bucks on a bigger tube. Respect the Kantrowitz limit—the top speed allowable given a tube-to-pod-area ratio.

VACUUM TUBE Capsules will travel in a near-vacuum to reduce drag significantly. Valves and pumps will keep internal air pressure at about 100 Pascals, or one-thousandth the air pressure at sea level. A little nitrogen may be injected into the tube as a desiccant.

HYPERLOOP AIR BEARINGS The capsule will ride on a cushion of air pumped from the bottom of lunch-tray-size sleds. Landing gear may need to be deployed as it comes to a stop.

PAYLOAD Hyperloop Tech's cargo capsule will be about 70 feet long, big enough to hold a standard 40-foot intermodal container. The capsule should weigh about 68,000 pounds and could theoretically accelerate from zero to 750mph in less than a minute.

PROPULSION The Hyperloop capsule speeds along a "magnetic river" propelled by linear induction motors spaced along the tube or installed as a continuous strip. Linear induction, used on maglev trains and the Toei Ōedo Line in Tokyo's subway, has no moving parts and low maintenance costs.

be more different.

Hyperloop Technologies is the Dream Team, enlisting a formidable lineup of Silicon Valley and Washington superstars, most with a strong connection to Musk. Pishevar, the 40-year-old poised to break into the billionaire ranks thanks to his investment in Uber, is a Musk intimate and the one who forced his friend to publicly reveal his hyperloop vision in the first place. His new Sherpa Ventures fund led Hyperloop Technologies' seed round, along with Formation 8, overseen by Joe Lonsdale, another young (FORBES 30 Under 30) centimillionaire hyperloop enthusiast and cofounder of big-data colossus Palantir. Now add Messina, who oversaw President Obama's 2012 reelection campaign; cochairman David Sacks, who worked under Musk at PayPal before scoring big at Yammer; Peter Diamandis, founder of the X Prize Foundation, on whose board Musk sits; and BamBrogan, who until recently was one of Musk's key SpaceX engineers. Musk has received regular updates from this group. President Obama has been briefed as well.

Even more surprising than the platinum-plated roster: Hyperloop Tech's initial mission. They intend to go way beyond Musk's original vision and focus first on freight rather than human transportation. This high-speed "cargoloop" could go over land or under water. Imagine submerged skeins of steel tubes crisscrossing the ocean

or up and down the coasts hurtling shipping containers at near supersonic speeds. Need iPhones? Press a button and a container-load is on its way from Shenzhen overnight.

Against this establishment lineup of all-stars, Dirk Ahlborn's scrappy crew feels like the Bad News Bears. Also based in L.A. and boasting a similar name, his Hyperloop Transportation Technologies (HTT) has the numbers: 200 engineers, designers and others who for the past year have essentially crowdsourced the hyperloop. Launched with a call to arms on Ahlborn's site JumpStartFund, HTT now has permanent moonlighters from Cisco, Boeing and Harvard who work strictly for equity. They're organized into a federation of teams tackling different aspects of the hyperloop: financial models, cabin and station design, capsule engineering. "At a certain point we'll need a full-time team and to raise money," says Ahlborn, "but right now it's working well." HTT plans to present its latest work at big railroad trade shows in Dubai and Johannesburg later this year.

Meanwhile, a group of Musk's own SpaceX engineers have been agitating to get in on the action. So in January Musk announced cryptic plans to fund the construction of a hyperloop test track in Texas, with no date specified. Just as Musk "open-sourced" his initial hyperloop concept in 2013, he says he plans to make the track, which will be designed for scaled-down capsules, available to any group that wants to test a design.

HYPERLOOP

The vision for the Texas test track is something out of Star Wars-pod racers flying through the air, would-be rebel forces facing off against the Empire. Which isn't a bad analogy for this whole nascent business. "We're peering into a process that hasn't happened before," says Pishevar. "It has risk, but this is an idea that can change the world."

ci-fi writers and other dreamers have long envisioned fast, tubular travel. Rocketry pioneer Robert Goddard in 1909 wrote a paper that wasn't too far off from Musk's proposal. In 1972 Robert Salter of the RAND

Corp. conceived a supersonic transcontinental underground railway called the Vactrain. Shervin Pishevar was one of those dreamers. Back in the dot-com era he floated an idea called Pipex, a network of pneumatic tubes that would shuttle important documents around San Francisco. It didn't go anywhere.

But Pishevar has. Mention his name around Silicon Valley and you might well get an eye roll. A fast talker and oversharer quick with hugs, tears and humble-brags, he drops the names of celebrity friends (Jay Z, Edward Norton, Sean Penn) likes dimes in a jukebox.

"He's unquestionably a promoter," says one Valley investor who's done deals with him. "But there are many good things that come from being a promoter." Ask anyone at Menlo Ventures, where Pishevar engineered one of the \$4 billion venture firm's greatest investments ever, in a then-small-but-growing taxi app called Uber.

Pishevar was initially turned down by Uber and its backers when it closed its second round of funding at the end of 2011. Pishevar was giving a talk in Algeria when he got a call from Uber CEO Travis Kalanick, saying he was back in if he could come meet Kalanick in Dublin. Pishevar grabbed the next flight to Ireland. "I didn't really know Shervin, [but] I was getting e-mails from him and intros from everybody he knows," Kalanick told FORBES in 2012. "I met with him because I had to." The two hit it off, walking the streets of Dublin for hours. They signed

a term sheet in the wee hours of the morning. Menlo left with an estimated 8% of Uber, at a valuation of \$290 million. The company is now worth \$42 billion. "I always tell people 'Lesson number one: Get on that plane," says Pishevar, whose Uber and other holdings are worth about \$500 million.

That score is the capstone of this immigrant's rags-to-riches American dream. Pishevar was six when his mother fled post-revolution Iran in 1980,

toting him and his two siblings. His father, who had run a big part of Iran's TV network under the Shah, had barely escaped a year earlier and was driving a cab in Washington, D.C. His mother, a teacher, got a job as a maid at a Ramada Inn. Pishevar's English was so bad that his second-grade teacher threatened to hold him back. By the time he was 10, though, he was calling local radio stations and debating Middle Eastern politics. "I think he was born 40 years old," says his brother Afshin, who sold his law firm to move to L.A. as Hyperloop's general counsel.

After graduating from Berkeley in 1998, Pishevar returned to Maryland and started a series of companies, including an early operating system, WebOS, as well as the Social Gaming Network and Webs.com, which eventually sold to Vistaprint for \$117.5 million. In 2007 he moved to San Francisco and began writing small checks to startups on the side. Menlo Ventures hired him as an investing partner in June 2011, and he got the San Francisco firm into Tumblr, Warby Parker and Uber.

Two years ago Pishevar raised \$153 million to start his own fund, Sherpa Ventures, with former Goldman Sachs venture investor Scott Stanford. Rather than backing existing startups, their idea was to build new companies from scratch around talented people. One of the first ideas he put in motion: Hyperloop Tech.

The hyperloop startup has a typically Pishevar provenance. Over the past few years he's inserted himself in Hollywood's self-important diplomat set, traveling with Sean Penn to Benghazi to meet Libyan rebels who fought Qaddafi and to Tahrir Square to rally with Egyptian protesters. In January 2012 he and Penn were riding on Elon Musk's private jet to Cuba to pressure the Castro government to release some American prisoners. En route, Pishevar pushed Musk about when he was going to tackle the hyperloop, a project the billionaire had been privately dropping hints about for almost a year.

"He said he didn't have time to do it himself. So I said, 'I'll do it. I'd love to do it.'" Over the next six months Pishevar kept on Musk to publish his hyperloop research,



"Our 200 part-time people, who know what they're doing, are performing better than 30 people full-time."

but Musk kept begging off, saying he was too busy. Pishevar being Pishevar, he forced the issue: In May 2013 at the AllThingsD conference, Musk had again avoided the subject of the hyperloop onstage. So Pishevar got to the microphone first for the audience Q&A: "Elon, can you please let the audience know more about the hyperloop idea?" Suddenly on the spot, Musk stumbled through a description and reluctantly promised to release the report by August. The idea was now public.

And when he did release his report, the Internet exploded with commentary, praise and snark. No matter, as Pishevar began putting the hype in hyperloop. A major Democratic Party donor, he turned a meeting with President Obama at the White House into a 30-minute hyperloop pitch. The President vowed to read Musk's report that night, according to Pishevar, and the next week asked the Office of Science & Technology Policy to review the idea. He pulled a similar stunt on Larry Page while on the Google founder's yacht as they watched the America's Cup race in San Francisco Bay.

Pishevar's persistence began paying off. Lonsdale committed to invest money and time. Then came Messina, who was already an outside partner at Sherpa Ventures. "Shervin understood very early on it was a political challenge," says Messina. "But this is not a typical sell. It's one of those things that if we do it, it could change everything. If we think on our feet and start moving fast, this is doable. It's not like flying to Mars." And when Musk came to Pishevar's 40th birthday party on a private 850-acre island in the British Virgin Islands, the VC got his blessing to pursue David Sacks, who had been Musk's COO at PayPal and had just sold Yammer to Microsoft for \$1.2 billion.

"I thought I was being asked to join a charitable board," says Sacks, who eventually joined Pishevar as Hyperloop Tech cochair, "but I realized they were serious about turning this into a business." While Musk was still officially keeping his distance from all hyperloop projects, he secretly met with Pishevar and Sacks for an update over dinner at the Sunset Tower Hotel in L.A. in April. "Elon felt that if we could prove it could work, even a two- or five-mile prototype, that would overcome any political challenges or regulatory issues," says Sacks. "But we all agreed we had to prove it first with private money."

That's what Pishevar's money is going toward. The \$8.5 million will cover initial engineering and design, with the \$80 million to build and operate the test track. But who will build it? Musk's SpaceX engineers kept telling

Pishevar the same name: Brogan.

As with his boss, it's easy to poke fun of Brogan Ba
Brogan. The ridiculous name came when the former As with his boss, it's easy to poke fun of Brogan Bam-

PIPE DREAMS

The hyperloop joins a long list of radical transportation projects. Here are some glimpses of the future (and one from the past).



skyTran

Inspired by the 40-year-old personal rapid transit system in Morgantown, W. Va., skyTran is a high-speed (150 mph) network of two-person pods that whisk people on suspended magley tracks. A test system is slated this year in Tel Aviv, with a bigger city network projected for completion by the end of 2016. SkyTran says tickets will sell for less than a bus fare. We doubt that. Cost: \$80 million.



Terrafugia Flying Car

It's 2015 and we still don't have flying cars? Terrafugia aims to change that with its Transition street-legal airplane, enabling you to commute like the future Marty McFly. There have been successful test flights, and deliveries are anticipated for 2016. Still, flying cars have been promised for so long we'll believe it when we take one to work. Cost: \$279,000.



Project Harp

Jules Verne imagined a day when astronauts would be fired from a gigantic gun to the moon. In the 1960s the U.S. and Canada tried to build guns that could shoot satellites into orbit. Despite perpetual funding woes and political obstacles, the project was able to fire test payloads up to 112 miles high before it was shut down in 1967.



Shweeb

Google invested \$1 million in Shweeb, which is developing a system of monorails with individual pods that you pedal with your feet. The company built a 220-yard prototype at an amusement park in New Zealand, Cool for cities. but what rhymes with Shweeb?



Two weeks before announcing Hyperloop, Elon Musk met with the founder of ET3, who is talking up a network of vacuum tunnels through which car-size capsules fly using magnetic levitation. The company claims that its system could be built for a quarter of the cost of a freeway and support more traffic. It is seeking sites for a 3-mile prototype that can travel more than 370mph.

Kevin Brogan decided last year to merge more than just lives with his new wife, Bambi Liu, now Bambi BamBrogan. He's got a Sgt. Pepper's-era handlebar mustache and deep v-neck T-shirt, which exposes a skeleton key. But get behind the pretension and you find a world-class engineer, who did all of the design work on the second-stage engine of the Falcon 1 and was the lead architect for the heat shield of the Dragon capsule. "He came up with a design no one had seen before," says a former SpaceX colleague.

BamBrogan was initially uninterested in Musk's idea. "I have no interest in helping rich people get from San Francisco to L.A. 20 minutes faster," sniffs the well-paid engineer. But redrawing cities and the dirty container shipping industry, as Pishevar pitched it? BamBrogan was sold.

HYPERLOOP

irk Ahlborn, a tall, easygoing German who bears more than a passing resemblance to Liam Neeson, comes to the world of transformative transportation theory through ... pellet stoves. He had run an Italian company in that field, and helped launch an assortment of startups, including a gas-fueled turbine play, after coming to Los Angeles in 2009. When the JOBS Act passed in 2012, he hatched a plan to make the startup process completely open source. His two-year-old Jump-StartFund encourages inventors to post their ideas and seek funding or partnerships from the public.

Musk's white paper was pretty much a public pitch, and Ahlborn jumped on it. A partner introduced him to SpaceX CEO Gwynne Shotwell, and she gave the green light for HTT to call for proposals in October 2013. They quickly had a couple hundred volunteers to sort through.

Anyone who works at least ten hours a week gets equity in the company. Ahlborn, based out of Hermosa Beach, Calif., keeps the teams connected through weekly conference calls and shared Google Docs. "Some of them are reluctant to admit to their boss what they're doing because they have full-time jobs," he says. HTT has been refining aspects of the project for a year now, releasing its updates on its website. A group of math students at Harvard and other schools built a fairly advanced routeoptimization model that plans the cheapest and least nauseating path to link any city-pair. An electric motor company in Portland is working on the capsule's propulsion system. A team of UCLA architecture students have created scale models of passenger interiors out of wood but it's not clear what they're going to be doing once they're done with school.

A cost analysis team estimates conservatively that a two-way passenger tube will run \$45.3 million per mile. "I believe we'll find innovations with steel or other materials to bring the price down closer to \$20 million per mile," says Jamen Koos, a Cisco employee who is running HTT's product management team.

Ahlborn says he has interest from the Mexican government for a 120-mile loop connecting Mexico City to Queretaro, but he's a long way from firm commitments. Even so, he's convinced that his crowdsourcing model will not turn off potential customers. "Our 200 people, who know what they're doing, are performing better than 30 people full-time," says Ahlborn.

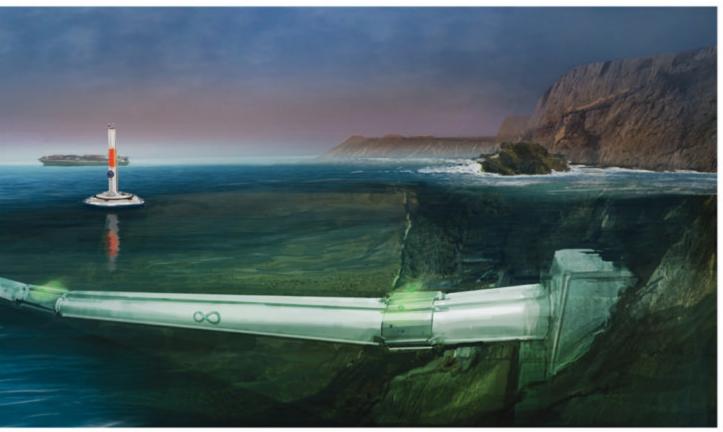
The pros, meanwhile, are already trash-talking. Bam-Brogan predicts that HTT's efforts "will be a great source of summer interns for us." Since August, work at Hyperloop Tech has moved from BamBrogan's garage, located



(naturally) in L.A.'s hipster neighborhood, Los Feliz, to a 6,500-square foot former ice factory in L.A.'s gentrifying arts district, just down the block from a topless bar.

A big breakthrough came following the Harry Reid meeting. The senator introduced the group to Anthony Marnell, who has built all of Steve Wynn's Las Vegas megaproperties and also served as CEO of the Rio Hotel & Casino. His real passion? Returning passenger rail from the West Coast to Vegas. "I've been chasing fast trains around the world for almost 30 years," he says. Over the past 10 years Marnell and his investors have sunk \$50 million of their own money into XpressWest, a proposed 190-mile high-speed link from Sin City to L.A.'s eastern exurbs, mostly to acquire the right-ofway. A hyperloop experiment would be far more interesting. Negotiations are ongoing. "There's got to be a way for us to work together," says Marnell.

A deal there would be important given that Musk's original proposal—the S.F. to L.A. route—isn't happening. Even discounting the political nuttiness that required 20 years just to get ground broken on California's high-speed rail project, Musk couldn't figure out a way to get tubes any closer than an hour from each city. Ramming rightsof-way through already congested cities remains a huge long-term issue with the project. HTT's artist render-



This never-before-seen rendering shows an undersea hyperloop for cargo that would connect Los Angeles to San Francisco without the hassles of acquiring land rights in big cities. A bigger ambition: laying pipe all the way to China to eventually replace polluting container ships.

ings show *Hunger Games*-style tubes on pylons crossing New York City's East River in the shadow of the Brooklyn Bridge. Good luck with that. "I'm convinced hyperloop is doable if you ignore the rights-of-way issue—which you can't," says Justin Gray, an aerospace engineer at NASA Glenn Research Center in Cleveland. That's part of why Hyperloop Tech is focusing on cargo: Since much of the eastbound cargo that goes into the port of Los Angeles travels via rail or road through Las Vegas, that route offers a natural test.

Those are just the beginning of the issues. On the technical side the ride could be a barf rocket at Musk's upper limit of 4.9 meters per second squared (or 0.5g) of lateral acceleration. Japan's Tokaido train tops out at 0.67 meters per second squared and goes only 180 miles an hour. You can also forget an entirely carbon-free loop. Musk envisioned lining the tube length with solar panels. According to BamBrogan, the drain from the hyperloop electric propulsion system exceeds what even that many panels could provide. There will need to be grid power, and that means coal.

The technical challenges are also pretty steep. Hyperloop Tech's capsule is designed to ride on a cushion of air

pushed out through the sleds below the capsule. The hard-drive industry offers some models, but no one has used air bearings that move at near transonic speeds outside of a lab. (BamBrogan's team plans to build a test rig this summer in that area.) And they will have to build the equipment that will make the tubes themselves, since no such machine exists. "I need to hire people who are really good at figuring out what they don't know," says BamBrogan.

Such is life in a space race. Things that once seemed impossible have a way of getting done. Musk spent \$100 million of his own money to build the Falcon 1 rocket, which failed four times before it worked. "It's time to stop doing photo apps and start doing something for the planet," says Hyperloop Tech board member Peter Diamandis.

Money won't be an issue. Pishevar says that once he gets liquid on his Uber stake (IPO, anyone?), he will personally fund half of Hyperloop Tech's \$80 million round. If they or any others then show results, billions will flood in. "We're looking at the end of one civilization and the beginning of another, and this transportation infrastructure we're building is the beginning of that new lattice," says Pishevar, as understated as ever. "There's no turning back."

Brain Boom

Advances in genetics and clinical science could lead to a flood of new treatments for depression, Alzheimer's, and even schizophrenia.

That's giving hope to millions of patients—and rebooting one of the biggest markets in the history of the drug business.

BY MATTHEW HERPER

ONY COLES COULD HAVE had any job he wanted in the drug industry. In five years at the helm of cancer drug developer Onyx Pharmaceuticals he increased its market cap eightfold by purchasing an experimental blood cancer drug for \$800 million, developing it into a big seller and flipping the whole company to Amgen for \$10.4 billion in October 2013. He personally made \$60 million

on the deal. Biotech watchers expected him to start

another cancer company or even command a drug

Bio-preneur: After selling his cancer drug company to Amgen, Tony Coles is attacking Alzheimer's.



giant like Merck or Pfizer.

Instead, Coles, 54, is using his own money to build a Cambridge, Mass.-based startup called Yumanity that is using yeast, the microbes that help make bread and beer, to study how misfolded proteins in the brain cause Alzheimer's, Lou Gehrig's disease and Parkinson's, and to create drugs based on that knowledge. There's already interest from Big Pharma. Coles says he chose to attack brain diseases, not tumors, because the need is so dire and the science is so fresh.

"We've got 50 million people around the world who have these diseases, costing \$650 billion a year, and lots of families like mine that have been affected," says Coles. "I had a grandmother who died of the complications of Alzheimer's disease. I think about my own health as well."

The modern drug business was built on brain medicines: Valium was the first blockbuster, selling 2 billion tablets in 1978, and Prozac defined the industry in the 1990s. But stagnant science since then led many big drug companies, including GlaxoSmithKline, Bristol-Myers Squibb and AstraZeneca, to flee neuroscience, even as an aging population promises a dramatic surge in brain disease. In the past five years the number of drugs being developed by large drugmakers for brain and nervous system disorders fell 50% to 129, according to NeuroPerspective, an industry newsletter.

But now, thanks to scientific advances such as genetic sequencing and new DNA editing technologies, the industry is in the midst of a dramatic reversal. Last year

It will still take years for neuroscience to metamorphose from a backwater into a hotbed of innovation, but it's happening. Mark Fishman, the head of research at Novartis, puts it bluntly: "We're revolutionizing the field."

THE HISTORY OF BRAIN DRUGS IS BASED ALMOST entirely on luck. The first antipsychotic, Thorazine, was tried on schizophrenics in the 1950s as a sedative and miraculously stopped their hallucinations. The first antidepressant, imipramine, was an attempt at making a new antipsychotic that failed but turned out to improve mood.

New blockbuster brain drugs of the past few decades—Prozac, Celexa, Zoloft, Zyprexa, Risperdal, Abilify—all mostly plumb the same basic mechanisms as the old ones: boosting neurotransmitters like serotonin for the antidepressants; blocking the dopamine receptor D2 for antipsychotics. They differ somewhat with regard to efficacy and a lot with regard to side effects, but they operate in essentially similar ways. For years drug companies have been trying out new drugs that hit other chemicals without a good understanding of whether, or in whom, they'll work.

But thanks to the revolution in our understanding of the human genome and other advances, scientists are finally starting to grasp the overwhelming complexity of illnesses that afflict the brain—and how to treat them. "Depression isn't one disease, it's many diseases," says Novartis' Fishman, who finds the new insights hopeful rather than discouraging. "Like cancer, once you understand the disease

"We've got 50 million people around the world who have these diseases, costing \$650 billion a year."

investors poured \$3.3 billion into firms that are developing drugs for brain-destroying or psychiatric illnesses, more than in any of the last ten years, says Neuro-Perspective. Some big drug companies, including Johnson & Johnson, Roche and Novartis, are finding ways to reinvigorate their efforts. New medicines for severe depression, psychosis and schizophrenia could reach the market within the next few years, and treatments for Alzheimer's. Parkinson's and some forms of autism are a real possibility, too.

"I do think that it's early days. There has been a fair amount of overpromising in neuroscience drug discovery," says Ryan Watts, director of neuroscience at Roche's Genentech division. "We have to understand there are going to be a large number of failures and little incremental victories that will start to build, and then you'll see things cracking open."

you have hope for making drugs," he says.

Some of the improvements are incremental. Psychiatry clinical trials often fail because placebo groups do better than they should. Part of the problem is that patients can exaggerate their symptoms to get into a study, and developing a relationship with their new doctor actually makes their symptoms seem better.

Acadia Pharmaceuticals watched its Nuplazid, for Parkinson's psychosis, fail in a clinical trial. In 2013 it ran another study that used videoconferencing, having the same specially trained group of doctors rate the symptoms of all patients. The dramatically positive results have sent the stock up 437% and have shown other companies that psychiatry trials can still succeed. "We expect to become the leading neurology company in the U.S.," crows Acadia Chief Executive Uli Hacksell.

Other research has led to giant leaps forward. In 2004

CHOOSE ONE

A:

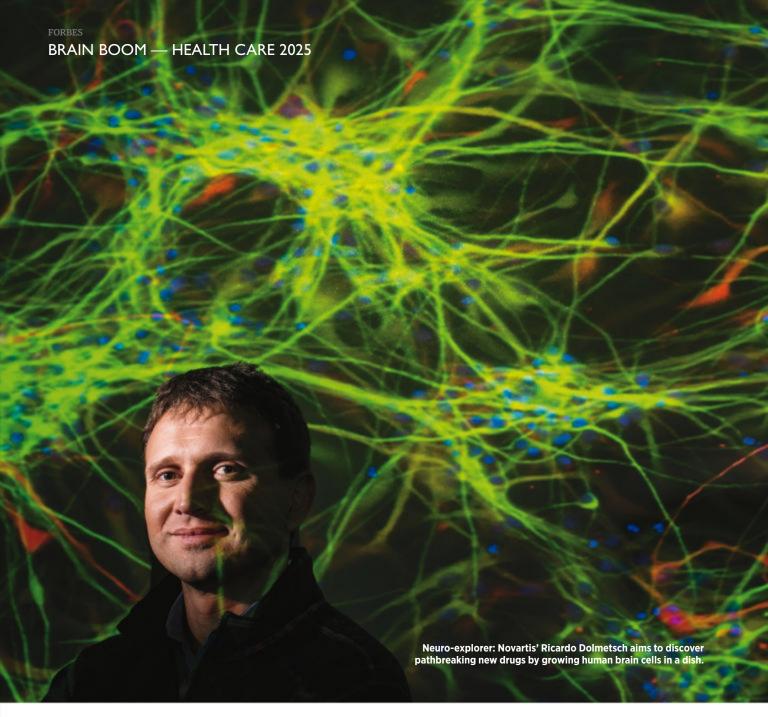
Reduce your company's health benefit costs up to 25% while simplifying the process

В:

Consider health care complexity a challenge and the money you're leaving on the table as "the cost of doing business"

OneExchange[™]

The one you need.



researchers at the National Institutes of Health suspected that a brain receptor called N-methyl-D-aspartate, or NMDA, which is key to forming memories, was also involved in depression. By luck, a group at Yale realized at the same time that ketamine, a widely used anesthetic that is also abused as a club drug called "Special K," blocked NMDA.

The results of the first trial of ketamine in just 17 depressed people were amazing. Twelve of the patients, or 71%, improved, and five, or 29%, had their depression go into remission after getting the drug intravenously. Incredibly, their depression lifted in a matter of hours. Existing antidepressants work in only a third of patients and take weeks to have any effect. Some doctors are already giving ketamine to their patients, though the practice is controversial.

Husseini Manji, who led the NIH group doing the ketamine study, left to run neuroscience at Johnson & Johnson in 2008, where he has made a nose-spray derivative of the drug one of his top priorities; it is now entering late-stage trials. But he has competition from several other companies, including tiny Naurex of Evanston, Ill. Ketamine causes hallucinations. Naurex makes drugs that don't and has even tested a pill version.

Cindy Kelly, a 48-year-old mother of two, had suffered from depression on and off for 20 years until a final debilitating bout that was making it hard for her to work or relate to other people. Getting into a clinical trial for one

of Naurex's drugs changed her life.

"Within 15 minutes my symptoms were gone, and it was like magic," she says. The effect wore off a week later, and she fought to get into a second study that would allow her to take the medicine again. She succeeded, and after several treatments her depression is gone, seemingly for good.

"When you're thinking, 'Why am I even alive?,' something that takes two weeks to kick in is not helpful," says Kelly of older depression drugs. "Something that can kick in right away so you can think clearly? That can save lives."

Another way to find drugs that have big effects: develop treatments for rare, terrible diseases, where creating any hope can change people's lives. That's the approach taken by Sage Therapeutics, a Cambridge, Mass.-based startup that went public in July, as it attacks a rare form of epilepsy.

Melissa Fishburn, 21, started having seizures at 14. Last November she stiffened like a board and fell to the ground in a seizure that would not end. Doctors put her in a medically induced coma because the only hope for patients with this condition is that after resting the patient can be brought back to consciousness and the seizure will have stopped.

But for Melissa, seizures were detectable on an electroencephalogram (EEG) even when she was fully unconscious. Doctors tried every drug they could think of, and nothing worked. "They were telling us either the seizures or the medication would end her life, one way or another," says her father, Dale.

Melissa's sister read about Sage's experimental drug, Sage-547, on the Internet. It blocks havwire electrical signals from jumping across nerve synapses in the brain and central nervous system. Dale mentioned it to her neurologist. Melissa, still in a coma, was flown from Springfield, Mo. to Wichita, Kans. to be part of a clinical trial.

After 24 hours her EEG readings improved. Six days later doctors started to wean her off of the drugs that kept

GO CONSIDER STOP

Betting on the Brain

Want to invest in neo-neuroscience? Here's our red-vellow-green take on eight stocks attracting investor attention.

Sage Therapeutics (NASDAQ: SAGE) MARKET CAP: \$990M

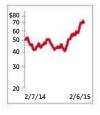
• With the stock up 27% since its oversubscribed IPO in July, some investors think this one is too expensive. But rare-disease drugs with the kind of powerful effects that this company's treatment for intractable epilepsy has don't



come along every day. Nor do management teams this skilled.

Alkermes (NASDAQ: ALKS) MARKET CAP: \$9.7B

• Innovations on tap at this drug delivery company (sales: \$576 million): schizophrenia medicines that last for a month or longer after a single injection; long-lasting treatments for addiction; and an antidepressant that works within a week. An Irish tax domicile doesn't hurt, either.



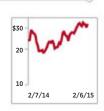
Intra-Cellular Therapeutics (NASDAQ: ITCI) MARKET CAP: \$550M

Things to worry about: This company has been around for years and went public through a reverse merger, rather than undergoing the scrutiny that comes with an IPO. What's to like? A drug that treats schizophrenia by a new mechanism and has psychiatrists excited.



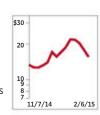
Acadia Pharmaceuticals (NASDAQ: ACAD) MARKET CAP: \$3.2B

There is no doubt that the clinical trial success of Nuplazid, for Parkinson's psychosis, has helped rekindle interest in psychiatric drugs and paid off for investors. But does a stock that's up 2,500% over five years still have room to run?



Xenon Pharmaceuticals (NASDAQ: XENE) MARKET CAP: \$220M

 The company is developing pain drugs with Teva and Roche, and will get a royalty from the million-dollar-plus gene therapy Glybera, which was recently approved in Europe. But the stock's tiny float and volatility are worrisome.



Vanda Pharmaceuticals (NASDAQ: VNDA) MARKET CAP: \$410M

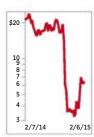
Its antipsychotic, Fanapt, has failed to thrive. Newly approved Hetlioz is supposed to help blind people whose sleep cycles have been disrupted by lack of sunlight. But some question whether it is any better than taking melatonin. Vanda insists it has already found 10,000 poten-



tial patients and say melatonin isn't as effective because it doesn't get absorbed by the body. Good luck.

Alcobra (NASDAQ: ADHD) MARKET CAP: \$125M

This company says its clinical trial of its ADHD drug would have worked if it could have excluded just four patients. But you can't do that. The results crashed the stock, and investors should stay away unless Alcobra can come up with a concrete plan for developing this drug.



BRAIN BOOM — HEALTH CARE 2025

her in a coma. A few days after that she regained consciousness. Now she loves singing Ed Sheeran songs at karaoke. It's not perfect: She's never been on a date and takes 22 pills a day. But because of the Sage treatment, she's alive.

TREATMENTS LIKE SAGE'S ARE JUST THE START of the changes scientists hope to bring about in the way we battle brain disease. Right now, for instance, patients who go to see a psychiatrist often get put on a medication based simply on what a patient tells them about how they're feeling. When one medication doesn't work (which is more than half the time) the doctor tries another, or a combination of drugs, based on his or her experience and gut feeling about what will work.

The reason this hit-and-miss approach fails so often, scientists are now coming to believe, is that it is based on attacking symptoms but not necessarily on what is biologically wrong with the patient.

In the future, hopes Ricardo Dolmetsch, who heads neuroscience drug discovery at Novartis, when you go to a psychiatrist she'll consider not only your symptoms but she'll sequence your genome.

That will allow her to decide on the right combination of two or three drugs to treat what is actually wrong with you. (Thomas Insel, the director of the National Institute of Mental Health, has even proposed creating a new, more genetics-based classification system for mental illness that could eventually replace the weighty bible of conditions that psychiatrists use to diagnose patients and bill insurers.)

This approach promises huge improvements in the treatment of mental illness because scientists are only now discovering just how tricky the underlying biology of mental illness can be, thanks to genetic testing.

For example, an average person has a 1-in-100 chance of developing schizophrenia. There's a single genetic mutation called 22q11 that increases those odds to 1 in 4, but it's rare. That's not the only way you can develop the disease, though. You can also suffer from schizophrenia if you have lots of little mutations that add up to increase

It gets even more confusing, though, because many of those same tiny mutations that can cause schizophrenia can also lead to autism, ADHD, bipolar disorder and other mental illnesses. It's not so much that they cause any one disease, Dolmetsch says. It's that each mutation makes the brain's machinery a little more "flaky," in his words. Depending on these variations and when in a brain's development they occur, different mental disorders result.

To deal with this terrifying complexity, drug com-

Treatments To Watch

Breakthroughs in genetics and sheer stubbornness on the part of drug developers could soon lead to new drugs for intractable brain diseases, including:

DEPRESSION

Outlook: Very good. Fast-acting drugs are already in late-stage trials after showing great promise.

Currently: Existing drugs take weeks to have an effect.

What's next: Faster-acting drugs. Alkermes is testing one that is in latestage trials that works in days, not weeks. A J&J inhaled derivative of ketamine and new drugs being developed by Naurex all seem to work in minutes on depression that doesn't respond to other drugs.

Long term: Eli Lilly has a new antidepressant pill that has shown some promise. Johnson & Johnson and Lundbeck are studying how depression might be the result of misfires by the immune system that damage the brain.

MULTIPLE SCLEROSIS

Outlook: Very good. Drugs may even reverse the disease.

Current: Multiple sclerosis has been the neurological disease with the most advances for patients because doctors were able to discover its root cause—an overactive immune system—and focus treatments there.

What's next: More pills along the lines of Biogen Idec's Tecfidera and Novartis' Gilenya, which keep the immune system from damaging nerves, are in development, including Forward Pharma's FP187.

Long term: The big thing to watch is whether any drug can reverse the damage the immune system does and help nerve cells regrow. One candidate is Biogen Idec's drug known as anti-LINGO, which should show some results next year.

panies are embracing new technologies—including brain cells created in the laboratory expressly for research purposes—that allow them to test medicines with unprecedented speed and precision. "That's the single most important piece here," says Stevin Zorn, the head of research at Lundbeck, the \$2 billion (sales) Danish maker of antidepressants. "We're starting to see a light that a lot of companies are starting to follow."

Nobody is embracing these technologies more fiercely than Dolmetsch. In 2007 he was not a pharmaceutical executive but a rising assistant professor at Stanford, studying ivory tower questions about how nerve cells communicate. Then his son was diagnosed with autism.

He gave up all the grants that were paying for his laboratory and started pursuing what are called induced pluripotent stem cells, cells that can be made from a flake of skin or a drop of blood and turned into any tissue in the body—including brain cells.

At first Dolmetsch focused on a rare disease, Timothy Syndrome, that causes both autism and heart problems. He was interested in learning about his son but became fascinated by drug discovery. "There's very little hope for these people. I really became committed to the cause," he says.

He started one project to make induced pluripotent stem cells at the pioneering Allen Institute for Brain Science in Seattle, which is funded by Microsoft billionaire

Paul Allen. But after coming to Novartis to talk about collaboration, it became clear that Novartis was a better fit. The drug giant was willing to give the 44-year-old neophyte a blank slate.

The reason the stem-cell-based "brains in a dish" are a big deal is that these cells have huge advantages over mice brains, which researchers traditionally use to test drugs. Mice are not people—not even close. We're separated from Mickey by 60 million years of evolution. Mice with 22q11 mutations never get schizophrenia. Mice don't get Alzheimer's, either.

So far Dolmetsch and his Novartis team have made hundreds of batches of these brains in a dish in a sprawling laboratory in Cambridge, Mass. using samples taken from people with mental illness. For common diseases like schizophrenia and depression there will be a tedious process of turning genes on and off to see what they do. But for some rare diseases, Dolmetsch merely screens Novartis' library of drugs against the cells to see if he can make them normal.

The results are already promising. After only two years two medicines are about to enter clinical trials as a result of the new screening technique. That's made him, like many others in the field, boundlessly hopeful and energetic about what comes next. "I want to restart neuroscience," Dolmetsch says. The reboot is under way.

PARKINSON'S DISEASE

Outlook: Advances coming soon, but big breakthroughs may take years.

Currently: The disease, which causes shaking and loss of coordination, is treated with a synthetic drug, levodopa. that boosts levels of the brain transmitter dopamine.

What's next: Many therapies focus on what to do when levodopa wears off. Acorda Therapeutics is developing an inhaled version. Voyager Therapeutics is testing a gene therapy that may make levodopa effective again when patients have developed resistance.

Long term: Attempts by Merck, Roche and Pfizer to block a genetic mutation that can lead to Parkinson's ran into problems when drugs caused lung damage in monkeys. Biogen Idec hopes to clear toxins that build in the brain as a result of the disease.

SCHIZOPHRENIA

Outlook: Fair. Interesting drugs in development but not enough of them.

Currently: Drugs can be effective at treating hallucinations and paranoia but don't yet treat cognitive problems and social difficulties caused by the disease.

What's next: Add-on drugs. In 2016 Forum Pharmaceuticals hopes to have results on its encinicline, aimed at helping schizophrenics think more clearly. Acadia Pharmaceuticals is testing its Nuplazid to help existing antipsychotics.

Long term: Intra-Cellular Therapies, a new publicly traded company, is testing a pill that, instead of working outside neurons, gets deep inside them. "It could be the most promising advance in antipsychotic pharmacology [in decades]," says Jeffrey Lieberman, psychiatrist in chief at New York-Presbyterian Hospital-Columbia University Medical Center.

ALZHEIMER'S DISEASE

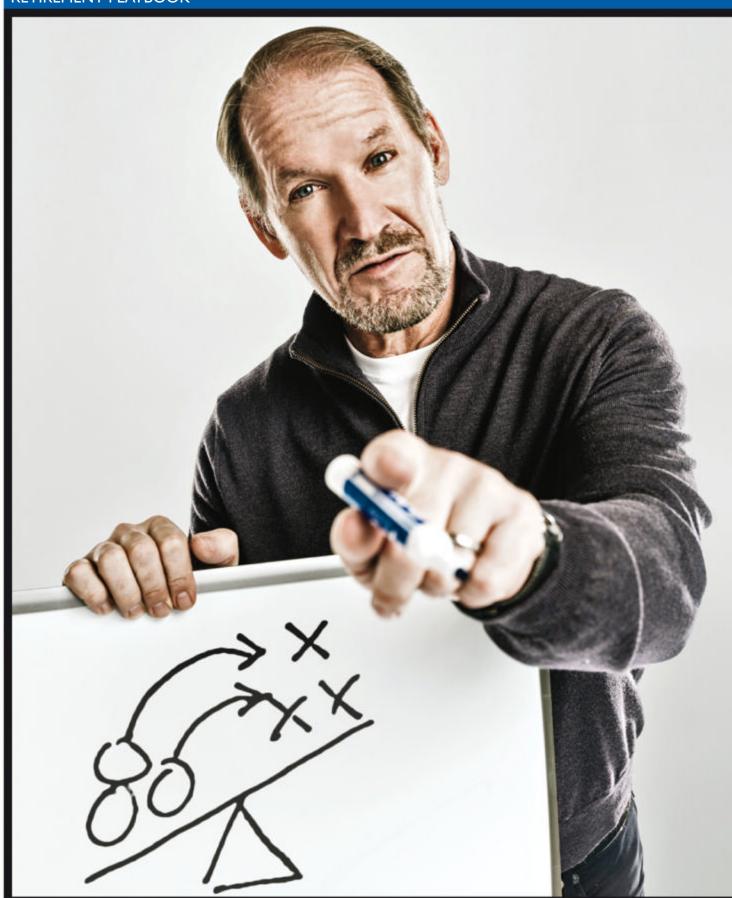
Outlook: Treatments that have a big impact are unlikely anytime soon.

Currently: Industry bet big on injectable medicines to prevent or reverse Alzheimer's by attacking the buildup of plagues in the brain-and failed.

What's next: A lower-risk approach: targeting Alzheimer's symptoms but not trying to reverse the disease. Forum Pharmaceuticals expects results from one such drug next year. Another drug from Lundbeck is in late-stage trials.

Long term: Drug companies won't give up on the plaque approach. Biogen Idec presents data for its plaque-buster in April; Eli Lilly could release results of a big retrial of a failed drug next year; Roche is testing a plaque-buster in patients with a gene that causes Alzheimer's before age 40. Merck, J&J and others are testing plaque-clearing pills.

RETIREMENT PLAYBOOK



ETHAN PINES FOR FORBES

INVESTING

YOUR BIG FAT IRA

Save thousands a year by using one of our five asset allocation cocktails.

BY WILLIAM BALDWIN

agging question for someone departing from a job, at retirement or in midcareer: where to roll over the 401(k). Inertia, memories of the 2008 crash or misgivings about managing a large pot of money may lead to a bad answer. Good answers are readily at hand.

What you do with a retirement account will, in the end, depend largely on two things: your tolerance for risk and your tolerance for fees. You'll do best if you can stand a fair amount of market risk and are averse to paying fees—meaning you are prepared to make decisions on your own. But not everyone has those inclinations.

If you are fearful, plenty of money managers are ready to hold your hand. The country's IRA assets are probably close to \$6 trillion (last official count: \$5.4 trillion two years ago), and they provide a rich bounty of fee income.

The pros will tell you that you need their help "rebalancing." That means periodically adjusting an account so that it maintains a desired weighting of stocks and bonds, or of U.S. and foreign securities. If stocks run ahead, as they have done recently, your money manager would sell some and reinvest in bonds.

That's a worthy activity, if the main purpose is to maintain a portfolio's risk level. Whether rebalancing adds to returns, as is often claimed, is another matter (*see box, p. 87*).

Does rebalancing have to cost you a stiff management fee? Not at all. The Vanguard Balanced Index Fund maintains a steady 60/40 blend of stocks and bonds, and it's dirt cheap at 9 basis points (\$9 annually per \$10,000 invested). For a slightly higher expense burden you can get a Vanguard balanced fund that has foreign stocks and bonds in the mix.

COACH BILL COWHER, 57

LIFETIME STATS: LED PITTSBURGH STEELERS TO THEIR FIFTH SUPER BOWL CHAMPIONSHIP. WON 149 GAMES AND EIGHT DIVISION TITLES OVER 15 SEASONS.

RETIREMENT PLAY: AT AGE 50
COWHER TOOK EARLY RETIREMENT
TO SPEND MORE TIME WITH HIS FAMILY. BESIDES A GIG AS A CBS STUDIO
ANALYST, HE LIVES BY WARREN
BUFFETT'S FIRST TWO INVESTING
RULES: NEVER LOSE MONEY AND
NEVER FORGET RULE NO. 1. ABOUT
HALF HIS RETIREMENT PORTFOLIO IS
IN BONDS, MOSTLY MUNICIPALS.

PEP TALK:

"I don't need to make a lot of money; I just don't want to lose it. I'm not looking to double my money with a golden opportunity." Vic Presutti, a 76-year-old in Dayton, Ohio, chose the cheap solution. When he retired from a job in operations research at the U.S. Air Force 16 years ago, he plopped his entire federal thrift account into an IRA invested in the Vanguard Balanced Index Fund.

"Occam's razor says the simplest answer is often the right one," Presutti explains. "I used to own a Janus fund and agonize over it, With this I don't."

At the other extreme: the custommade portfolios of mutual funds you might get from a stockbroker in a branch office of a national firm like Edward Jones or Wells Fargo. Personalized advice is costly. A wrap fee in the neighborhood of 1.5% typically comes on top of mutual fund expense ratios. There's a good chance your combined expenses will top 2%.

In the wide-open space between the costly stockbrokers and the cheapskate do-it-yourselfers lies a large population of semiautomated money managers connecting to clients via telephone and the Internet. They'll put you in low-cost index funds—and rebalance them—for a fee of 0.25% to 0.5% annually.

"We give wealth services to the masses," says Mitch Tuchman, the 58-year-old software entrepreneur turned money manager who founded Rebalance IRA two years ago. His 0.5% fee entitles a customer to at least an hour a year of phone counseling in which retirement ambitions and fears are probed and a prefab package of exchange-traded funds assigned. Add in the 0.15% expense ratio for his most popular portfolio and the cost comes to 0.65%.

That's a lot—just shy of \$4,000 a year on a \$600,000 portfolio. But Tuchman says his clients are the ones who would never go it alone with their rollovers. If he doesn't rescue them, he says, they will remain the prey of stockbrokers charging three times as much. (Tuchman is a Forbes.com contributor.)

For a moderately risk-tolerant

FIVE WAYS TO INVEST YOUR ROLLOVER IRA

1. EXPERT BALANCE

FROM THE ADVISORY PANEL AT REBALANCE IRA

86% stocks, TWO-FIFTHS FOREIGN

65 BASIS POINTS1

REBALANCING: AUTOMATIC

TICKER	FUND	ALLOCATION
HYG	ISHARES IBOXX \$ HIGH YIELD CORPORATE BOND	5.0%
EMB	ISHARES JP MORGAN US DOLLAR EMERGING MARKETS BOND	5.0
VCIT	VANGUARD INTERMEDIATE-TERM CORPORATE BOND	4.0
IJR	ISHARES CORE S&P SMALL-CAP	9.0
VSS	VANGUARD FTSE ALL-WORLD EX-US SMALL-CAP	9.0
VEA	VANGUARD FTSE DEVELOPED MARKETS	13.5
VWO	VANGUARD FTSE EMERGING MARKETS	13.5
VYM	VANGUARD HIGH DIVIDEND YIELD	6.0
VNQ	VANGUARD REIT	8.0
VTI	VANGUARD TOTAL STOCK MARKET	27.0

2. COPYCAT

KNOCK OFF THE ABOVE

86% stocks, TWO-FIFTHS FOREIGN

15 BASIS POINTS

REBALANCING: DO IT YOURSELF

3. GLIDE PATH

THIS FUND EASES OUT OF STOCKS AS YOU AGE

VTHRX VANGUARD TARGET 100% RETIREMENT 2030 FUND

75% STOCKS, A THIRD FOREIGN 17 BASIS POINTS

REBALANCING: AUTOMATIC

midcareer saver, Tuchman's firm would recommend a mix with an 86% dose of stocks. The package was created with the help of an advisory board of investment luminaries, including Burton Malkiel (author of the classic *A Random Walk Down Wall Street*) and Charles Ellis (a veteran of half a century of pension fund consulting).

The Rebalance panel undertakes elaborate evaluations of risks, rewards and costs to arrive at investment recipes. The risk-tolerant one is heavy on small companies because, the experts determined, small companies tend to do better than large ones. It's heavy on emerging markets

4. SIMPLICITY

DIVERSIFIED, WITH 9,155 SECURITIES

VBIAX VANGUARD BALANCED 100% INDEX FUND

60% STOCKS, NONE FOREIGN

9 BASIS POINTS
REBALANCING: AUTOMATIC

5. SKINFLINT

FOR THE PASSIONATE COST-CUTTER

60% stocks, NONE FOREIGN

VBTLX	VANGUARD TOTAL BOND MARKET	40%
VTSAX	VANGUARD TOTAL	60%

6 BASIS POINTS

REBALANCING: DO IT YOURSELF

BASIS POINT = \$1 A YEAR PER \$10,000 INVESTED

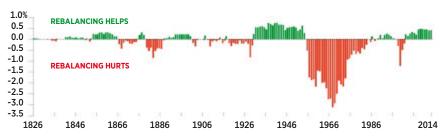
because that's where there will be more economic growth. It's light on bonds because those things offer such meager rewards. (Why buy an AT&T bond paying 2.5% when the stock yields double that?, Malkiel asks.)

You can get all this expertise without paying for it. Our Copycat portfolio above starts out the same as Tuchman's. But you'd be on your own with any rebalancing or with figuring out how this IRA fits in with the rest of your assets and liabilities.

With or without professional help,

REBALANCING WORKS—SOMETIMES

A REBALANCED 50/50 STOCK AND BOND PORTFOLIO BEATS A STATIC ONE ABOUT HALF THE TIME. GRAPH SHOWS ANNUALIZED EXCESS RETURN FOR 25-YEAR HOLDING PERIODS.



SOURCE: ROGLE FINANCIAL MARKETS RESEARCH CENTER

DOES REBALANCING **BOOST RETURNS?**

"Rebalancing" is on the lips of every wealth manager. It's one of the things they do to justify their fees. It's supposed to make you richer.

Rebalancing is the art of taking money from winning investments, at regular intervals, and redeploying it into losers. The technique usually is applied to categories of investments (as opposed to individual securities): You keep a certain balance between, say, growth stocks and value stocks or between stocks and bonds. By this discipline you are induced to sell high and buy low, or so goes the theory.

Burton Malkiel, the Princeton economist and advisor to Rebalance IRA, explains how the system would have worked over the past 15 years.

"It's January 2000. You have no idea that this is the top of the Internet bubble. But you do know that your 60/40 allocation is now 75% stocks and 25% bonds. So you sell stocks and buy bonds," he says.

"January 2003: You don't know that October of [the previous] year was the bottom of the market for stocks. You do know that the Federal Reserve is getting interest rates closer to zero, and that your bonds are up to 55% of your portfolio and your stocks are 45%. So you sell bonds and buy stocks....

"The big lesson of behavioral finance is that people do exactly the wrong thing. They came into the [stock] market in the first quarter of 2000 because high tech was hot. The money came out in the third quarter of 2008 because the world was falling apart. Rebalancing forces you to do just the opposite."

So far into this century rebalancing looks very smart. But is it sure to keep working? Skepticism is called for whenever anyone claims to have in hand a formula that guarantees enhanced

Yes, rebalancing is a certain winner if you are dealing with two categories that you know, in advance, will have the same average return.

Suppose stocks and bonds are destined to each earn 5% a year over the next 25 years while following irregular paths to the finish line. A portfolio that starts out 50/50 and remains untouched will earn 5% a year. A portfolio that is rebalanced will do better than 5%. Just as advertised, rebalancing will have you getting out of stocks when they are ahead of themselves and into relatively cheap bonds, and vice versa.

The catch is that you have no way of knowing that stocks and bonds are going to deliver the same average return. From 1942-67 stocks raced ahead. An undisturbed portfolio that started out 50/50 ended up with a heavy stock allocation and an average return of 8.6% a year. A rebalancer would have been pulling money out of the stock market and would have ended with only 5.5% a year.

Rebalancing is also bad news in a relentless bear market. If U.S. stocks sink into a 25-year funk, a rebalancer will be averaging down and getting killed.

Michael Nolan, an analyst at the Bogle Financial Markets Research Center, looked at 25-year returns for hypothetical stock/bond portfolios over the past two centuries. The chart displays the benefit (or loss) produced by rebalancing over the return enjoyed by someone who started out 50/50 and then stood pat.

Rebalancing adds to wealth just some of the time. On average, Nolan found, rebalancing subtracted an annual 0.15% from results. -W.B.

contemplate these matters:

How much risk can you stand? The hazards of stocks are considerable at any time. Now, posit economists at the San Francisco Federal Reserve Bank in a recent paper, we have the risk that retiring Baby Boomers will line up en masse to exit equities, depressing returns for the next decade. It doesn't help matters that stocks are at the moment trading at an abnormally high multiple of their long-term earnings.

Ask whether you have the stamina to hang in for a rebound if Wall Street pulls a repeat of 2008. And who guarantees that there will be a rebound? Stocks might crash and not recover in your lifetime.

What other assets do you have? Charles Ellis, the pension expert, says younger workers have a big asset they don't think about: their future career earnings. This somewhat predictable income stream is more like a bond than a stock. To balance out. he says, younger savers should lean toward stocks.

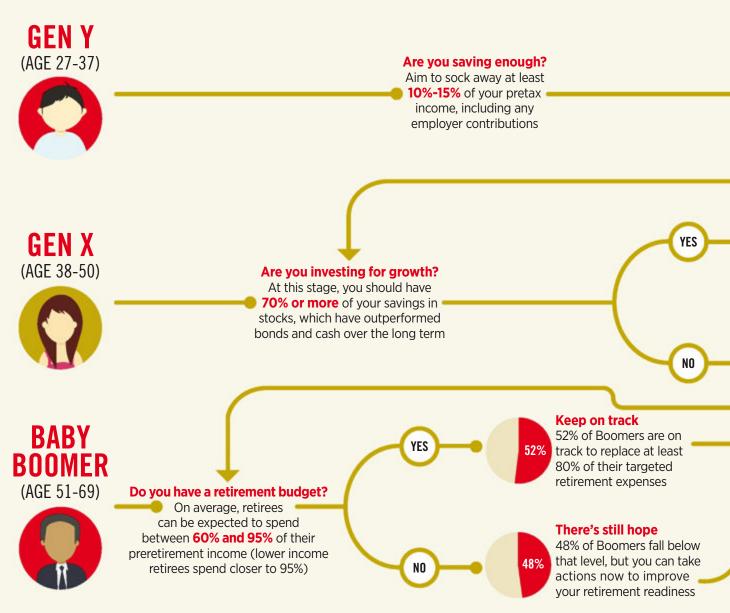
Do you have enough in that IRA? A midcareer sum of \$600,000 is a lot more than most people have, yet it may fall short for a better-paid worker expecting to maintain a standard of living in retirement. Fidelity Investments has a formula saying that a 50-year-old should have four years' salary salted away.

At age 66, \$1 million looks like a lot. But with a safe 4% withdrawal rate, an IRA of that size generates only \$40,000 a year, or maybe \$30,000 after taxes. It scarcely makes up for the traditional corporate pension that has gone missing.

How much effort do you want to put into fussing with your IRA? You could rebalance every week, or add all sorts of exotic categories like emerging market bonds, and still end up doing no better than someone with a plain old balanced fund mixing stocks and bonds. The simple solution chosen by Vic Presutti has a lot going for it. **(E)**

ARE YOU ON TRACK FOR THE RETIREMENT YOU WANT?

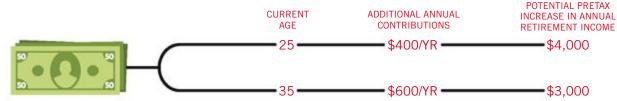
Everybody likes to talk about how they will pursue their life goals in retirement. The bottom line, however, is that they need to fund it, whether they want to travel the world, start a new business, explore a new career or work for a nonprofit. Check to see whether you're on track for your generation:



*Commentary provided for educational purposes only. Past performance is no guarantee of future results. Hypothetical examples assume that the individual saves until retirement age 67, lives through age 93, and receives a 1.5% real (inflation-adjusted) increase in wages per year. Rates of return are a nominal 7.0%, which consists of 4.7% real return and 2.3% inflation. This illustration assumes that the savings rate stays constant throughout the investor's working career. Estimated increases in retirement monthly income are in constant 2015 dollars. It is assumed that upon retirement the real (inflation-adjusted) dollar amount is withdrawn annually through age 93, and that the participant took no loans or hardship withdrawals from his or her workplace plan. All dollars shown (including increases to monthly retirement

Fidelity Voice Case Study: The Power of 1%

Increase your savings 1% per year to boost retirement income¹ (based on two individuals, one age 25 with a salary of \$40,000, and the other age 35 earning \$60,000, both with an assumed 7% rate of return).





You're in great shape

You are one of the 33% in your age group who are saving 10% or more a year of their income

TAKE CHARGE

- SAVE MORE: Meet your company match
- DEFER TAXES: Use 401(k)s and IRAs
- AUTOMATE: With payroll deductions
- BABY STEPS: Increase savings 1% each year
- FIX YOUR MIX: Diversify your asset mix



You're not alone

67% of your generation are saving less than 10% of their annual income

Good job

You are among the 60% of your age group with a healthy portion of their savings in stocks for long-term growth potential

REV IT UP

- PRIORITIZE: Balance your house or education savings with retirement
- FIX YOUR MIX: Rebalance your asset mix to fit your personal situation and risk tolerance²
- SAVE MORE: Take advantage of the power of compounding
- **BE TAX SMART:** Maximize contributions to tax-deferred accounts, if eligible



Look for growth

40% of your generation have 50% or less of their savings in stocks, which may not offer enough growth potential for 20-30 years of retirement

DON'T PANIC —

- CATCH UP: Max out your savings—save 15% or more
- TAKE YOUR TIME: Retire later to grow savings and maximize benefits
- **CONSIDER OPTIONS:** For example, lifetime fixed-income annuities may reduce the risk of outliving assets
- THINK ABOUT DOWNSIZING: Turn home equity into retirement savings and reduce living expenses







If you follow these savings and asset allocation guidelines, you could improve your prospects for meeting your

retirement income goals

paycheck) are pretax dollars and are rounded up. Upon distribution, applicable federal, state and local taxes are due. No federal, state or local taxes; inflation; or account fees or expenses were considered. If they were, returns and monthly increase would be lower. Investments that have potential for 7.0% annual rate of return also come with risk of loss. 2 Your specific asset mix should fit your personal situation and risk tolerance. Survey data was collected through a national online survey of 2,265 working households earning at least \$20,000 annually with respondents aged 25–73 from June through October 2014. Fidelity Brokerage Services Member NYSE, SIPC, 900 Salem Street, Smithfield, RI 02917. 713550.1.0

TREASURE ISLAND

If you want your capital gains taxes to magically disappear, Puerto Rico has a deal for you.

BY PHILIP DEMUTH AND LAUREN GENSLER

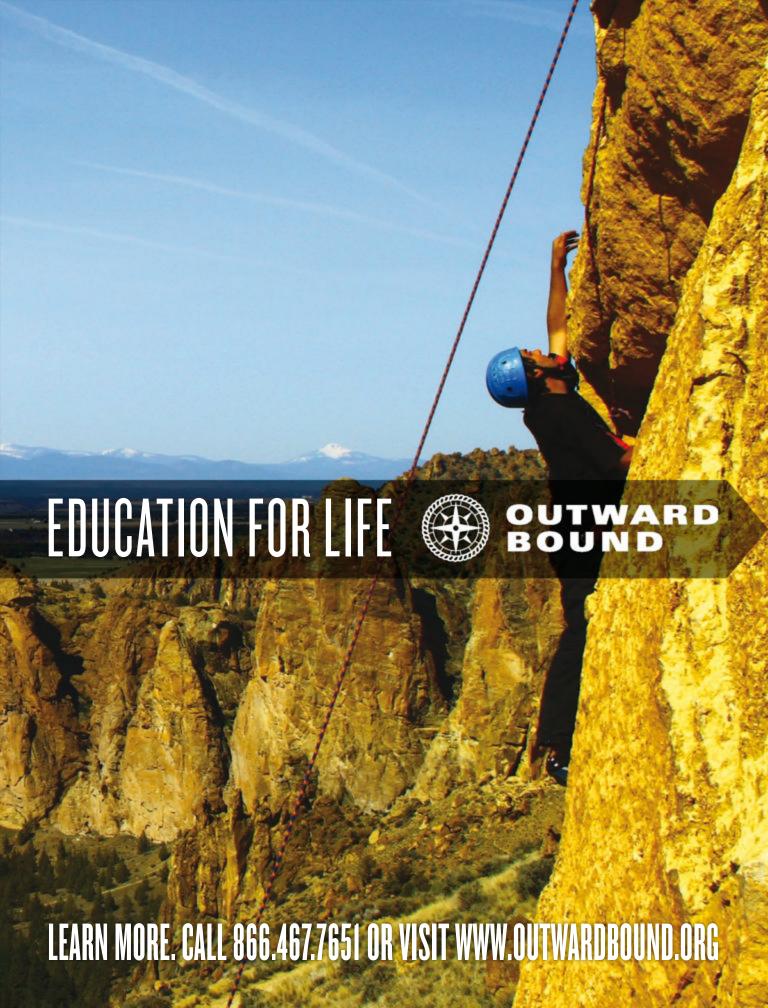
COACH TONY DUNGY, 59

LIFETIME STATS: LED COLTS TO SUPER BOWL CHAMPIONSHIP. WON 139 GAMES IN 13 SEASONS WITH THE COLTS AND BUCCANEERS.

RETIREMENT PLAY: AS AN EVANGELICAL CHRISTIAN DUNGY HAS DEVOTED SIGNIFICANT TIME AND ENERGY TO CHARITIES, INCLUDING BIG BROTHER/SISTER ORGANIZATIONS. ALSO A PROLIFIC AUTHOR OF SELF-HELP BOOKS, HIS MOST RECENT DEVOTED TO MARRIAGE.

PEP TALK:

"As a coach the goal was to win the Super Bowl. Now I still set goals of meeting young people or helping people be better. At the end of the day you still have that little scorecard."



RETIREMENT PLAYBOOK: TAXES

s the U.S. Treasury Department continues to tighten its noose around offshore accounts, a new tax haven has sprung up under its nose in the Caribbean. Welcome to Puerto Rico-island of tropical breezes, and (for new arrivals only) a 0% tax rate on certain dividends, interest and capital gains.

Puerto Rico is about the same size as Connecticut but with more palm trees, twice the unemployment rate, a third the median household income and a tiny fraction of the hedge funds-a deficiency the financially teetering territory aims to

firms and even software developers to locate there by taxing their corporate profits from exported services at a flat 4% rate and allowing those profits to be paid out to the owners free of Puerto Rico income tax. So far the government has okayed 346 export companies, with 400 approvals expected this year.

Pabrai used Act 20 to set up a new private equity venture in Puerto Rico last year and figures he'll save as much as \$10 million in tax a year, as well as half a million in operating costs. (There's an abundance of educated Puerto Ricans ready to work for less than their California counterparts. Office space is cheaper, too.) California and 29% in Connecticut. On short-term gains and taxable interest it's now a hefty 52.3% in NYC, 52.6% in California and 48.6% in Connecticut.

Sadly, moving to Puerto Rico won't buy you a total dispensation from the Internal Revenue Service. Uncle Sam still wants his cut on dividends you receive from U.S. public companies, profits from mainland private businesses, pensions and deferred compensation earned in the states, and Social Security benefits.

Plus, any unrealized capital gain accrued before you moved to Puerto Rico—say, on that Apple stock you bought for a split-adjusted \$10 a

"THE WAY THE U.S. TAX CODE IS WRITTEN, I COULD BE IN MARS AND BE TAXED ON INTERGALACTIC INCOME BUT NOT IF I'M SITTING ON THIS ISLAND IN THE CARIBBEAN."

correct by turning itself into a refuge for tax-oppressed millionaires and billionaires.

Yes, this is legal. While the U.S. asserts a sweeping right to tax citizens' income wherever they live and wherever it's earned, Section 933 of the tax code exempts residents of Puerto Rico from paying U.S. income tax on their Puerto Rico-sourced income. Instead, the Commonwealth of Puerto Rico has the exclusive right to tax local income as it sees fit.

"The way the U.S. tax code is written, I could be on Mars and be taxed on intergalactic income but not if I'm sitting on this island in the Caribbean. It's kind of in a twilight zone," marvels Irvine, Calif. money manager Mohnish Pabrai.

To exploit this special status and help rescue its economy, Puerto Rico's Legislative Assembly adopted two laws in 2012 and expanded them last year. Act 20 entices hedge funds, family offices, professional service

Act 22 grants new Puerto Rico residents (including, after a recent amendment, returning Puerto Ricans who left before 2006) a 0% rate on locally sourced interest and dividends as well as all capital gains accrued after they become residents, a particular benefit for active traders. So far 509 tax refugees have been granted Act 22 status and another 600 will get it this year, Puerto Rico's Department of Economic Development & Commerce projects.

Puerto Rico? Really? When the property crime rate in the San Juan metropolitan area is six times that of the New York City area?

It depends on how you want your pocket picked. Since 2013, when rate hikes on the wealthy and a 3.8% ObamaCare tax on net investment income both kicked in, the top effective combined federal and state tax rate on long-term capital gains and qualified dividends has been 32.7% for New York City residents, 33% in

share—is subject to U.S. tax if you sell within ten years after your move. During that period Puerto Rico will also impose a 10% tax on your pre-move gains, which gets credited against what you owe Uncle Sam. After ten years the U.S tax on preexisting gains disappears and the Puerto Rican bite drops to just 5%.

This is a much sweeter deal than you can get these days by renouncing U.S. citizenship. In 2008, after years of stories in FORBES and elsewhere about billionaire tax expatriates, including Campbell Soup heir John Dorrance and Styrofoam cup heir Kenneth Dart, Congress decided that anyone worth more than \$2 million would have to pay taxes on unrealized gains above a certain amount (\$690,000 for 2015) when giving up citizenship—just as if they'd sold all their assets.

If you take up residence in Puerto Rico, you get to keep your citizenship and the dollars in your wallet and



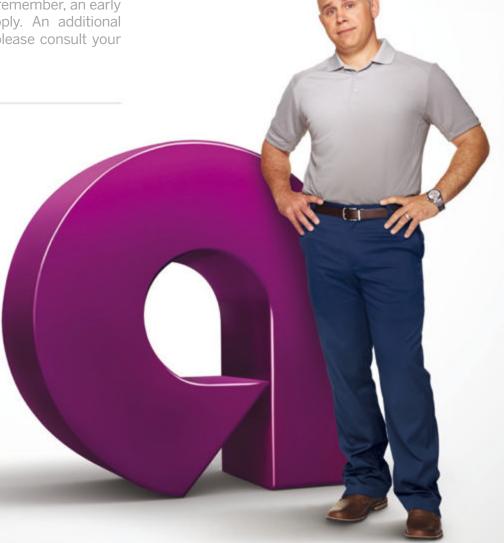
IF I WANT TO GAMBLE WITH MY RETIREMENT MONEY I'LL GO TO VEGAS.

Ally IRA Savings and CDs.

For a safe bet, get an IRA from Ally Bank. Because your hard-earned retirement savings deserve a secure place to grow. Just remember, an early withdrawal penalty may apply. An additional IRS tax may also apply, so please consult your tax professional.

allybank.com | 1-877-247-ALLY





RETIREMENT PLAYBOOK: TAXES

you don't have to ante up any U.S. gains tax unless you sell within the next ten years.

Make no mistake: To benefit from Act 22 you must become a bona fide Puerto Rico resident, which means being on the island at least 183 days a year. You can't just rent a post office box in San Juan and call it "home" while keeping a \$5 million house and your ties back in the States. Your business, family, bank and brokerage accounts, driver's license and yacht should all move with you to the island.

But you don't really have to spend 183 *full* days in Puerto Rico. "If you arrive at 11:59 at night that is counted

anything, even more bullish about what he has called "the Singapore of the Caribbean." While he declined to be interviewed for this story, island officials say Paulson's investment will reach \$1.5 billion by year's end, a figure his aides don't dispute.

So far Paulson has acquired three beachfront hotels, including the luxe five-diamond St. Regis Bahia Beach Resort and the historic Condado Vanderbilt, which was designed by the same architects as New York's Biltmore Hotel but lay dormant for 15 years until he came along. It reopened in December after a \$200 million renovation.

Paulson has also snapped up of-

corner is a good bet," Prouty opines, adding that the current government's policies are setting the stage for an island comeback.

While he moved for business and tax reasons, Prouty says his weekends are now "utterly epic," with his family cruising to "pristine beaches with funky beach bars" where they meet up with others from his daughter's private school.

What about the danger that either Puerto Rican voters or the U.S. Congress will decide the deals being handed out to the rich are so good they shouldn't be true?

Those already approved for Act 20 and 22 benefits have some protec-

YOU DON'T HAVE TO SPEND 183 FULL DAYS IN PUERTO RICO TO QUALIFY AS A RESIDENT. IF YOUR PRIVATE JET ARRIVES IN SAN JUAN AT 11:59 P.M., THAT COUNTS AS A DAY.

as a day in Puerto Rico," says San Juan tax attorney Edgar Ríos-Méndez. Conveniently, San Juan is 3 ½ hours or less by private jet from New York's LaGuardia Airport.

(Be careful. Remember, you must convince not only Puerto Rico's friendly officials that your residence is on the island but also the possibly hostile auditors from the high-tax jurisdiction you've just fled—and they, too, can count partial days to claim you as a resident.)

Pabrai considers the Act 22 personal tax deal so good that he's surprised thousands of rich Americans haven't already moved to Puerto Rico. Yet he himself has not for the sort of personal reason that could be holding others back, too: His wife, Harina Kapoor, started and runs a solar energy company and a yoga studio in California and understandably doesn't want to go.

Billionaire investor John Paulson hasn't moved, either, but is, if

fice space and a parking lot in the financial district, and empty lots on the boutique-lined Ashford Avenue, primed for new high-rise condos.

Nicholas Prouty, who runs Putnam Bridge, a private equity firm that targets distressed assets, did call the moving vans. Putnam picked up two big Puerto Rico projects from bankruptcy court. Then, despite "some sense of guilt" about uprooting his 10-year-old daughter, Prouty moved Putnam Bridge and his family from Greenwich, Conn. to San Juan in 2013.

Putnam is sinking at least \$100 million into revitalizing the Puerto del Rey Marina near the town of Fajardo and poured more than \$200 million into Ciudadela, a mixed-use development in San Juan's Santurce district that has now sold all of its 312 condo units, primarily to Puerto Ricans. "Beachfront property located in a country with an American flag in the courtroom and a CVS on the

tion from shifting island sentiment: contracts with the Puerto Rican government guaranteeing favorable tax treatment for 20 years. Meanwhile, government officials optimistically predict that, by 2017, Act 20 and 22 will together create 82,500 jobs, more than ten times what they've generated so far.

As for a change in the U.S. tax code, that seems unlikely for now, particularly if Republicans deem it a tax hike. And Washington presumably wants Puerto Rico to succeed. After all, if the territory can't pay its \$71 billion in government debts (currently rated BB with a negative outlook by Standard & Poor's), U.S. investors will take part of the hit.

Still, it's worth remembering this: Some of Puerto Rico's economic problems can be traced to Congress' decision to end, as of 2006, a special tax break for drug and other manufacturers who produced in Puerto Rico and exported to the U.S.



TRANSFORMING ENGAGEMENT JUNE 9-10 - NEW YORK CITY

Hosted by Moira Forbes, this multi-generational gathering of influencers will come together to address today's most pressing issues.

ECONOMIC INNOVATION - LEADERSHIP - EDUCATION - HEALTH

To have meaningful impact, leaders must seize opportunities to effectively engage with a diverse array of stakeholders—to build community around a shared vision. How are today's most successful leaders redefining pathways to power... and how can each of us better leverage our influence to ignite lasting change?















Row 1: Jo Ann Jenkins, AARP, Kimberly Williams-Paisley, Actress, Jessica Simpson, Jessica Simpson Collection, Steve Forbes, Forbes Media, Mary Callahan Erdoes, J.P. Morgan Asset Management, Shiza Shahid, Malala Fund, Kathy Ireland, kathy Ireland Worldwide, Vice Admiral Michelle Howard, United States Navy, Bobbi Brown, Bobbi Brown Cosmetics, Beth Brooke-Marciniak, EY, Row 2: Robin Roberts, Good Morning America, Moira Forbes, Forbes Woman, Khalida Brohi, Sughar Empowerment Society, Diane von Furstenberg, DVF Studio LLP, Felicity Huffman, What The Flicka.com, Maysoon Zayid, NYAACF, Tory Burch, Tory Burch LLC, Cherie Blair, Cherie Blair Foundation for Women

PLEASE JOIN MOIRA FORBES FOR A REVOLUTIONARY GATHERING.

For more information and to request an invitation please visit forbes.com/conferences

RETIREMENT PLAYBOOK



CAREERS

UNRETIREMENT

The Social Security and tax laws hold hidden traps and rewards for the growing army of well-off folks who just keep on working.

BY KELLY PHILLIPS ERB

ast year Alice Finch Lee passed away at the age of 103. The older sister of author Harper Lee, she was also known for her own extraordinary achievement: She was a practicing lawyer until the age of 100.

While most Americans don't plan on working until the century mark, many, particularly better-educated folks, are pushing off retirement or working while "retired." In 2013, 51% of the highest-income quartile of those 65 and older worked. Even more striking, work accounted for 44% of total income in this quartile, more than Social Security and pensions combined, as James Poterba, president of the National Bureau of Economic Research, calculates.

In theory, federal policy encourages this. The Senior Citizens' Freedom to Work Act of 2000 eliminated the "earnings test" for Social Security beneficiaries who have reached the "normal" or "full" retirement age—66

for those born from 1943 through 1954. In practice? There are still hidden traps, but there are also some lucrative opportunities. Here's what you need to know.

THE EARNINGS TEST SURVIVES

The Social Security earnings test, with its many wrinkles, survives until you reach 66. You can claim (reduced) benefits at age 62, but if you do you'll be docked \$1 in benefits for every \$2 in earned income you have above \$15,720 a year. If you claim benefits midyear, however, you can elect to have the earnings test applied on a month-by-month basis, with a current ceiling of \$1,310 a month. That means if you get a \$1 million bonus in January, and retire and claim Social Security in February, you'd lose benefits only in those months (if any) where your earnings exceeded \$1,310.

In the calendar year you turn 66, a different, more generous rule ap-

plies: You can earn up to \$41,880 in the months before you turn 66 and will lose only \$1 in benefits for each \$3 you earn above the threshold. And get this: The same \$41,880 ceiling applies whether you turn 66 in February or December.

Is the earnings test unfair? Not really. You get credit for the docked benefits, leading (in most cases) to a larger check later. Still, if you're working more than part-time, it usually doesn't make sense to claim before 66 and often pays to wait until 70—at which point you stop earning additional delayed retirement credits. Note that if you continue to earn more than the maximum amount taxed by Social Security-that's \$118,500 this year—your check at 70 will almost certainly be bigger than it would have been if you had stopped working at 60 and simply waited until 70 to claim. Of course, you must continue to pay Social Security taxes on earned income regardless of age, so this is hardly a giveaway.

RETIREMENT PLAYBOOK: CAREERS

For married and widowed folks simply putting off claiming any benefits until 70 doesn't necessarily produce the most in total benefits. Some married partners will do best by claiming Social Security "spousal" benefits at 66 and then filing for benefits based on their own earnings history at 70, all the while continuing to work. Widows and widowers, for their part, should usually claim "survivor's" benefits at the earliest age those benefits won't be completely wiped out by earnings from work (that could be earlier than 66) and their own earned benefits at 70, advises Boston University economics professor Laurence J. Kotlikoff, a Forbes.com contributor and coauthor

and distributions from retirement accounts are even crazier for older folks who work. For example, beginning in the year you hit 701/2, you can no longer make either pre- or aftertax contributions to a traditional IRA—the kind where earnings are tax-deferred and withdrawals are taxed. Yet you can still make aftertax contributions to a Roth IRA, where your investments grow completely tax-free. Not so coincidentally, 701/2 is also the age at which you must start taking required minimum distributions from a traditional IRA, but not from a Roth IRA.

While there are no age limits on Roth contributions, there are income you can delay taking money out of a 401(k) past the mandatory distribution age, so long as you don't own 5% or more of the company.

What if you're self-employed? Maybe you've been contributing to a SEP IRA or a Keogh, plans that allow you to save pretax up to 25% of your net earnings from selfemployment, with a contribution cap of \$53,000 for 2015. Consider switching to a "solo" or "individual" 401(k): It has a \$59.000 overall limit (including a \$6,000 catch-up contribution for those 50 and older, which you don't get with the others), plus big advantages if you've cut back your hours and earnings or want to

THE INSANELY COMPLICATED RULES FOR RETIREMENT ACCOUNTS ARE EVEN CRAZIER FOR OLDER FOLKS WHO WORK, BUT YOU CAN PLAY THEM TO YOUR ADVANTAGE.

of a new book. Get What's Yours: The Secrets to Maxing Out Your Social Security (Simon & Schuster).

YOUR BENEFITS WILL BE TAXED

Anywhere from 0% to 85% of your Social Security benefits are taxable, depending on how high your "combined" income is. What's that? Your normal adjusted gross income, plus your tax-exempt muni bond interest, plus one-half of your Social Security check. When combined income rises above \$44,000 for a couple, or \$34,000 for a single, up to 85% of Social Security benefits may be subject to tax. While some affluent seniors living off investments may be able to keep their income low enough to avoid the full 85% hit, seniors who work should assume 85% of their Social Security benefits will be taxed.

RETIREMENT SAVINGS GET TRICKIER

The insanely complicated rules surrounding both contributions to restrictions. For 2015 a couple aged 50 or older can contribute \$6,500 each (\$13,000 total) to a Roth IRA, if their modified adjusted gross income is below \$183,000 and one of them has that much in earned income. (No. you can't fund a Roth from investment income.) Partial contributions are allowed up to \$193,000. For singles and heads of households a full \$6,500 contribution is allowed up to \$116,000, and a partial one up to \$131,000. (For 2014 contributions, which may be made until Apr. 15, slightly lower income limits apply.)

Fortunately, there are other options that allow you to continue shoveling earnings into tax-favored retirement accounts. Whatever your age, you can continue to make contributions to any plan your employer offers, including a traditional 401(k), a Roth 401(k) and a Simple IRA. While you must start taking required minimum distributions from a Simple IRA at 701/2, if you're still working,

build a Roth nest egg.

With the 401(k) you can stuff 100% of the first \$24,000 you earn into a 401(k) as a pretax or Roth "employee" contribution and then contribute another 25% of earnings pretax as an "employer" contribution. And while you must start taking minimum withdrawals from all of these plans at 70½ (regardless of work status), you can roll your 401(k) Roth money (both contributions and earnings) to a Roth IRA, tax-free.

Here's the play: Once in the Roth IRA, the funds can continue to grow tax-free with no mandatory distributions during your lifetime. You can withdraw cash, if you need to, without raising your income and tax rate, or you can leave a tax-free kitty to your heirs. Note: Not all providers of solo 401(k)s offer the Roth option. Vanguard, E-Trade, T. Rowe Price, Merrill Edge and TD Ameritrade do; Fidelity Investments and Charles Schwab don't. 🚯



Nobody puts your old 401(k) in the corner.

Get step-by-step rollover assistance.

We know bringing your retirement assets together can be a hassle. It's why we have rollover consultants on hand to help you with the paperwork and assist in transitioning from your old provider. How easy is that?

Get up to \$600 when you roll over your old 401(k). Call TD Ameritrade at 800-213-4583 or go to tdameritrade.com/rollover for details.



A rollover is not your only alternative when dealing with old retirement plans. Please visit tdameritrade.com/rollover for more information on rollover alternatives.

All investments involve risk, and successful results are not guaranteed. **Offer valid through 04/30/2015. Funding of \$25,000-\$99,999 receives \$100; funding of \$100,000-\$249,999 receives \$300; and funding of \$250,000 or more receives \$600.** Cash bonus subject to twelvemonth funding-duration condition. See Web site for details and other restrictions/conditions. This is not an offer or solicitation in any jurisdiction where we are not authorized to do business. TD Ameritrade, Inc., member FINRA/SIPC. TD Ameritrade is a trademark jointly owned by TD Ameritrade IP Company, Inc. and The Toronto-Dominion Bank. © 2015 TD Ameritrade IP Company, Inc. All rights reserved. Used with permission.

TAKEOVER TAX DODGE

Is an unwanted capital gain staring you in the face? Turn it into a Pomona charitable gift annuity.

BY WILLIAM BALDWIN

wo American pastimes: retirement planning and tax dodging. They come together in an investment recipe that you should consider if you are about to lose a stock in a cash merger.

The idea: Hand off your soon-to-beliquidated shares to a college, turning some of the money into a contribution and most of it into a retirement payout. The strategy is the most compelling for a woman who is in her peak earning years and fairly close to retirement. It also works, although not as powerfully, for investors who don't quite fit that

The first law of portfolio tax planning says that you should hold on to winners. But sometimes a sale is beyond your control. You behave yourself and then along comes an all-cash merger.

It's a nice problem to have if the merger kicks up the price of the stock, but still it's a problem. If you bought auto parts maker TRW at \$3 a share six years ago, you are now threatened with liquidation at \$105.60, as a German acquirer wraps up a tender offer. State and federal tax on the gain will probably eat at least a fourth of this asset.

How to mitigate the damage? Sometime before the deal closes, transfer the shares to a college in return for a "charitable gift annuity," a contract that gives you a fixed annual payout for life. The payout may be less than you'd get from a commercial annuity, but the shortfall goes to a good cause and the tax savings go to a very good cause—your bank account.

Many colleges with big endowments have CGA programs. Mostly these deals are aimed at grateful grads. One college, Pomona, has terms so attractive that well over half its participants are nonalumni. In the right circumstances a Pomona CGA beats out a commercial annuity purchased with the takeover proceeds.

Let's suppose that Jane Doe is sitting on Acme stock that she bought years ago for \$20,000 and that is soon to be acquired for \$100,000. She's a 60-yearold executive with a high salary. What with state income tax and the various enhancements to the 39.6% federal bracket, her marginal tax rate is 50% for ordinary income. For long-term capital gains, it's 30%.

Jane is planning to retire at 70 and will be converting some of her savings into a fixed monthly payout that will

last for her lifetime. At that point her income will be lower and she will be living in a state with lower taxes. Her tax brackets, we hypothesize, will go down by a third, to 33% and 20%.

Before the merger closes, Jane sends the shares to Pomona and takes back a deferred annuity. It will pay \$11,120 a year, beginning when she is 70. If she dies before then, her heirs get nothing.

Calculations based on IRS actuarial tables and an interest factor put the present value of Jane's future income stream at \$90,000. This means that Jane is using only 90% of her Acme shares for her own benefit. The other 10% of them are being donated to Pomona. When she does her 2014 taxes she can claim a \$10.000 charitable deduction.

When Jane retires she can amortize, against her \$11.120 annual income, the \$90,000 of capital she has invested in the annuity. The actuarial tables give her a 16-year life, so she can deduct \$5,625 a year, leaving her with \$5,495 of ordinary income.

A further breakdown determines A further breakdown determines that the capital being recovered consists 80% of gain and 20% of original cost of the Acme position. So, of the \$5,625,



RETIREMENT PLAYBOOK: INCOME

WHERE CAPITAL GAINS LOOM

THESE COMPANIES, THE SUBJECTS OF PENDING OR THREATENED MERGERS, WILL CREATE TAX PAIN FOR INVESTORS WHO GOT IN CHEAPLY AND DON'T HAVE AN EXIT PLAN.

TICKER	TARGET	MARKET CAP (\$BIL)	RECENT PRICE	GAIN OFF LOW ¹	ACQUIRER
TRW	TRW AUTOMOTIVE HOLDINGS	\$11.4	\$103	7,377%	ZF FRIEDRICHSHAFEN
PL	PROTECTIVE LIFE	5.5	70	2,390	DAI-ICHI LIFE INS
NPSP	NPS PHARMACEUTICALS	4.9	46	1,576	SHIRE PHARMACEUTICAL
MWIV	MWI VETERINARY SUPPLY	2.4	190	859	AMERISOURCEBERGEN
SAPE	SAPIENT	3.5	25	666	PUBLICIS
GTIV	GENTIVA HEALTH SERVICES	0.7	20	594	KINDRED HEALTHCARE
DRC	DRESSER-RAND GROUP	6.2	80	587	SIEMENS ENERGY
OVTI	OMNIVISION TECHNOLOGIES	1.6	27	565	SHANGHAI PUDONG ²
PETM	PETSMART	8.1	82	515	BC PARTNERS ²
RVBD	RIVERBED TECHNOLOGY	3.3	21	480	ONTARIO TEACHERS ²
FDO	FAMILY DOLLAR STORES	8.7	76	421	DOLLAR GENERAL
SIAL	SIGMA-ALDRICH	16.4	138	397	MERCK KGAA
MHGC	MORGANS HOTEL GROUP	0.2	7	361	YUCAIPA
PTRY	PANTRY	0.9	37	321	MAC'S CONVENIENCE STORES
CNL	CLECO	3.3	55	216	BC INVESTMENT ²

ALL DATA AS OF JAN. 29. 'RECENT PRICE VERSUS 10-YEAR LOW. ²AND OTHERS SOURCE: S&P CAPITAL IQ.

\$4,500 gets taxed at the long-term gain rates and \$1,125 is not taxable at all.

On the bottom line is an aftertax annual income from the annuity of \$8,407. After Jane turns 86 the capital investment in the annuity is fully recovered and the entire income stream is taxed. Her take-home at that point drops to \$7,450 a year.

That charity deduction puts money in Jane's pocket right away. If her income tax bracket is 50%, her deduction tax bracket is somewhere around 45%. (Why lower? Because charity deductions don't protect you from either the ObamaCare tax or a weird penalty related to adjusted gross income.) So, an upfront \$4,500 goes into the plus column for the Pomona deal.

Now let's see what happens if our heroine sits still while the IRS locomotive runs over her. The merger puts \$100,000 in her hands, including a capital gain of \$80,000, on which the tax is \$24,000. That leaves her with \$76,000. She puts \$4,500 aside (to make the comparison fair with the charitable gift annuity) and has \$71,500 left to buy a commercial annuity.

New York Life pays the same as Pomona—11.12%. But in this scenario Jane has less capital to put into the annuity, and so she gets only \$8,018 a year pretax. After taxes she pockets \$6,846 a year until she turns 86 and \$5,372 a year thereafter.

This is a screaming win for Pomona's annuity. How is that possible?

The essence of CGAs is timing. With help from the college Jane is able to postpone the Acme gain until later (as much as 26 years later). The deferral allows Jane to put more capital to work inside the retirement product, and when the government is eventually paid off, it's at a lower tax rate. In this respect the annuity acts a lot like an IRA.

Two other things work in favor of the college annuity. One is that commercial annuity vendors have to compensate sales agents; colleges don't. Another is that Jane is able to take a \$10,000 deduction for a gift of Acme shares that cost her only \$2,000; the \$8,000 of appreciation on those shares is never taxed.

Jack Doe would get the same payout as Jane from the college, but at New York Life he'd get 10% more than Jane. (Commercial insurers often give nicer annuities to males on the assumption that they'll die younger.) Still, Jack comes out ahead at Pomona, if we make the same assumptions

about tax brackets and Acme.

A wealthy annuitant whose tax bracket is destined to stay high also wins with the college play, although not as much as Jane and Jack.

Is Pomona being too generous? Probably not. "Yale pays lower rates because its alumni are very philanthropic," says Robin Trozpek, assistant vice president of capital giving at Pomona. Her college's strategy gets the attention of investors who are not affiliated. Two recent transactions involved Covidien shares that were about to be acquired by Medtronic, and neither came from a Pomona grad.

Do you own any of the stocks in our takeover table? You have three choices.

1. You can take the cash and the upfront tax hit. If you buy a commercial annuity with what's left, you'll have this small advantage: If you die young, your executor might be able to get some tax benefit out of a deduction for the unrecovered portion of your annuity purchase price.

- 2. You can do a CGA with your alma mater. This makes a lot of sense if you are giving to the college anyway.
- 3. You can have a chat with the gift office at Pomona. **F**

Statistics research: Andrea Murphy.

HOT STREAKS. COLD SNAPS. DRY SPELLS. WHEN INVESTING, WEAR LAYERS.

OR

Retirement plans built for ever-changing conditions.

Much like a well thought through family vacation to the Outer Banks, a thorough retirement plan is, meteorologically speaking,

prepared for nearly every situation.

Because even though the short-term forecast may show nothing but clear-blue skies, the long-term financial outlook is infinitely more difficult to prognosticate. That is why a rigorously disciplined,

thoughtful approach is always recommended.

And while being ready for every circumstance,
be it atmospheric or financial, may seem
impossible, a Raymond James advisor will

help you craft a well-prepared strategy. One that employs the kind of foresight that helps make sure you're not caught in an economic

downpour without an umbrella. When you meet with a Raymond James financial advisor, they'll carefully tailor a long-term plan just for you – complete with thoroughly packed retirement luggage. For over 50 years, our advisors have

quietly served clients differently. Go to lifewellplanned.com to learn more. It's time to find out what a Raymond James financial advisor can do for you. **LIFE WELL PLANNED.**



There's no such thing as The Financial Almanac for long-term forecasting.

RAYMOND JAMES®

LIFEWELLPLANNED.COM

WEALTH MANAGEMENT

BANKING

CAPITAL MARKETS

COACH MIKE DITKA, 75

LIFETIME STATS: LED 1985 CHICAGO BEARS TO SUPER BOWL CHAMPIONSHIP. WON 121 GAMES IN 14 SEASONS.

RETIREMENT PLAY: DITKA
LEVERAGED HIS DRILL SERGEANT
PERSONA INTO A LUCRATIVE
RETIREMENT AS A COMMENTATOR, PITCHMAN AND RESTAURANT
INVESTOR. NOW HE SPENDS MUCH
OF HIS TIME PLAYING GOLF AND
SUPPORTING CHARITIES LIKE GRIDIRON GREATS, A FUND TO BENEFIT
RETIRED NFL PLAYERS IN NEED.

PEP TALK:

"I paid off my debt. I have no credit card debt, I have no house debt. If you make \$5 million but spend \$6 million because of foolishness, it's not going to work. The main thing was don't spend everything you make. Put it away, invest it—because nothing lasts forever."

SECOND ACTS

THE CROSS-POLLINATOR

Raised Catholic in the Philippines, Angelica Berrie now runs a charity that gives 40% of its money to Jewish causes, including unconventional ones, such as helping gay and transgender Israelis.

BY ASHLEA EBELING

hey met in Manila in 1989. Angelica Urra was 33. a convent-educated Filipino of Spanish and Chinese descent who had built a little business manufacturing and exporting papier-mâché jewelry from her home country. Russ Berrie was 55, a Bronx-born secular Jew who started out selling Fuzzy Wuzzies (tiny creatures bearing greeting card messages) from a rented New Jersey garage in the 1960s and had taken his burgeoning business in tchotchkes and teddy bears public in 1984. At their wedding in 1992 (her first, his fourth) their cake was topped with pink- and bluehaired rubber trolls, then among Russ Berrie & Co.'s biggest sellers.

For the next decade Russ and Angelica worked together building up both his business and his charitable giving. The company even made the

2001 FORBES list of the Best Small Companies, with revenues of \$302 million and net profits of \$44 million. But on Christmas Day 2002 Russ, a type 2 diabetic, died of a massive stroke, leaving the Russell Berrie Foundation assets valued at \$420 million, including 43% of the company's stock, then worth \$340 million.

At first Angelica, who had headed up strategic planning, took over as CEO of the company, as well as president of the foundation. But running the business without Russ wasn't as much fun, and there were problems as the company digested its 2002 acquisition of the Sassy baby products line. So in May 2004 she relinquished the CEO job to a former Toys "R" Us exec and turned to a bucket list (she had made it when Russ died) of things she wanted to do by 60. Among its entries: convert to Judaism, meet the Pope, learn to drive and

skydive. "How cool is that, to pursue what you want?" asks Berrie, who at 59 has checked off all those goals and keeps adding new ones.

At the top of her to-do list, however, was figuring out how to make an impact with the foundation's dollars. For advice, she turned to Forbes 400 member Lynn Schusterman, whose husband, Oklahoma wildcatter Charles Schusterman, died in 2000, leaving her to run their \$73 million (now \$2.3 billion) foundation.

"We were kind of trailblazers, the two of us women running major foundations," says Schusterman, who flew to New Jersey to meet with Berrie and found they had other shared interests too. In 2007 their foundations jointly sponsored a conference on building more inclusive Jewish giving, such as giving to groups supporting LBGT Jews, Jews of color and women. Last September, right

RETIREMENT PLAYBOOK: SECOND ACTS

after the most recent Gaza-Israel fighting, they were in Jerusalem together sponsoring the Sacred Music Festival, a celebration of music of Christians, Muslims and Jews.

Indeed, what looks at first glance like a scattershot approach to grant-making by the Berrie Foundation has an underlying logic. While furthering her late husband's diverse commitments to diabetes research (\$68 million given since 1997), humanism in medicine, Jewish causes, New Jersey and entrepreneurialism, Berrie has added as her personal mission the "cross-pollination" of cultures and ideas and making connections between people. "Usually men who

hospital to her home village.

But bigger grants, Berrie insists, must still pass her "Would Russ do it?" test. In 2005, for example, the foundation made a \$26 million gift (matched by the Israeli government) to create a nanotechnology institute at Technion in Haifa. "This feels authentic to who Russ was," she says. "It's in keeping with his entrepreneurial spirit."

One quintessentially Angelica project is the John Paul II Center for Interreligious Dialogue in Rome, which she set up in 2007 at the Pontifical University of St. Thomas Aquinas in Rome to fund priests pursuing graduate degrees in interrewere sinking. The foundation finally ended up selling most of its shares in 2006 to a private equity firm for \$99.5 million, leaving it with \$298 million in liquid assets at the end of 2006. (Renamed Kid Brands, the company got rid of the gift business in 2008 to concentrate on baby products. Both Kid Brands and the gift business have since gone bankrupt.)

In 2011 Berrie coauthored a book, *A Passion for Giving*, hoping to inspire other philanthropists. Her advice? Don't go it alone. Among the resources she credits with helping her find her philanthropic way: a Montana spiritual retreat sponsored by Peggy Dulaney, a fourth-genera-

AS A GROWING NUMBER OF THE RICHEST AMERICANS PLEDGE TO LEAVE HALF OR MORE OF THEIR WEALTH TO CHARITY, MORE WIDOWS WILL BE LEFT TO RUN LARGE FOUNDATIONS.

made the money frame the conversation of what they want to do," Berrie says matter-of-factly. "A wife can have her own personality and add to it." It's an issue more widows will face, as a growing number of the richest Americans pledge to leave half or more of their wealth to charity and women continue to outlive their typically older husbands.

In Israel Berrie is constantly seeking out agents of change, making small grants, for example, to a Palestinian woman who teaches her peers (in a discreet, unmarked facility) about birth control and a bedouin woman who helps divorcées start new lives. Her giving in her native Philippines, through both the Berrie Foundation and a small one of her own, often plays off her Jewish and New Jersey connections. She sent typhoon relief through the American Jewish Joint Distribution Committee and brokered a donation of used equipment from a New Jersey

ligious studies. Among the 60 fellows who have gone through the programs (studying with a rabbi, among other things) is a Nigerian who decided on the priesthood after a priest in the next village was beheaded. Berrie personally accompanies the fellows on an annual ten-day trip to Israel. "I want to know all of them. God forbid, say, one becomes Pope!" says the now Jewish Berrie, who has directed \$7.8 million to the project.

As those trips demonstrate, Berrie is an unabashedly happy practitioner of hands-on philanthropy: "You have to do things that feed your soul to see that there's more than just having money and giving it away. It's a very personally rewarding journey." She considers philanthropy her focus and Kate's Paperie, a boutique paper store she owns in Manhattan, just a hobby.

The biggest problem Berrie has confronted at the foundation was diversifying out of Russ Berrie & Co. stock as the company's fortunes

tion Rockefeller philanthropist. She also reached out to Sanford Bernstein's widow, Mem Bernstein, who is charged with spending down the Avi Chai Foundation by 2020, to help her decide how quickly to give away assets. Currently the Russell Berrie Foundation is making around \$20 million a year in grants and plans to exhaust its funds by 2033, if not before.

When she's not traveling, Berrie keeps fit with a 5- to 10-mile daily walk along the Hudson River. But with her 60th birthday looming, she worries about a succession plan. A stepson, Scott Berrie, is the only person on Russ Berrie's handpicked six-person foundation board who is younger than she is; the oldest is 91.

"How do we transmit what we know of Russ to future trustees?" she asks. For now, the office joke is that if she does something wrong, micromanager Russ will e-mail her from heaven. **F**



E*TRADE LETS ME BE THE CFO OF MY RETIREMENT PLAN.

ACCOUNT FEES, FUND EXPENSES, BROKERAGE COMMISSIONS AND SERVICE FEES MAY APPLY. THE E*TRADE FINANCIAL FAMILY OF COMPANIES PROVIDES FINANCIAL SERVICES INCLUDING TRADING, INVESTING, INVESTMENT ADVISORY SERVICES AND RELATED BANKING PRODUCTS AND SERVICES TO RETAIL INVESTORS. SECURITIES PRODUCTS AND SERVICES OFFERED BY E*TRADE SECURITIES LLC, MEMBER FINRA/SIPC. SYSTEM RESPONSE AND ACCOUNT ACCESS TIMES MAY VARY DUE TO VARIETY OF FACTORS, INCLUDING TRADING VOLUMES, MARKET CONDITIONS, SYSTEM PERFORMANCE AND OTHER FACTORS.
©2015 E*TRADE FINANCIAL CORPORATION. ALL RIGHTS RESERVED.

FORBES LIFE

TRAVEL

A New Place In the Sun

With the opening of the Belle Mont Farm resort and a bold plan for expansion, can St. Kitts become another St. Barts?

BY HANNAH SELIGSON

luxury resort that starts at over \$2,000 a night might seem like a strange way to bring about social change but not if you are Val Kempadoo. The 52-year-old Trinidadian entrepreneur is the mastermind behind one of the most anticipated hotel openings in the Caribbean: Belle Mont Farm, set on verdant hills between Mount Liamuiga and the Caribbean Sea on the island of St. Kitts.

With its 84 guesthouses and 7 four-bedroom farmhouses, Kempadoo's hotel is trying to make hospitality terms such as "sustainability," "eco-friendly" and "social responsibility" actually mean something to the local economy. Belle Mont Farm, which opened in December, is part of a 400-acre Kempadoo project situated on organic farmland, known as Kittitian Hill. "This venture is about redefining sustainability and social justice in the Caribbean tourism industry," says Kempadoo, who worked as an organic farmer in his youth.

To start, almost everything that is served in Belle Mont Farm's Kitchen restaurant—overseen by executive chef Christophe Letard, a veteran of Relais & Châteaux properties in Europe and the Caribbean—is either grown organically on-site or sourced from St. Kitts or nearby Nevis. Belle Mont Farm also features local architecture and predominantly local staff and labor (around 90%), and seeks to establish a center for Caribbean culture on its premises.

It's an endeavor, however, that goes beyond farm-to-table dining with Caribbean flavors. There's a clear economic mission embedded in Kempadoo's plan. In the rest of St. Kitts' hospitality industry, Kempadoo claims, only around 10% of revenue stays on

the island. By hiring locally, Kempadoo believes he can retain 75% or 80%. "It's a purpose with a hotel wrapped around it," he explains. "This is my revolution."

Even the Kittitian Hill golf course is part of his social and environmental plan. The Ian Woosnamdesigned course is edible—think mango picking on the ninth hole—and closed one day a week for weeding, the easiest way to keep a chemical-free golf course in prime condition.

Naturally, Kempadoo plans to the run the whole \$400 million development, which will eventually include a spa, an open-air cinema and a lower-priced 200-room hotel, entirely on renewable energy.

Social activism is certainly not new for Kempa-

doo. In Trinidad he cofounded two political parties. Later came his more capitalist phase. In 2005 Kempadoo started Terra Forma Developments, which designed Warner Park, the national cricket and football stadium of St. Kitts and Nevis.

Like a Caribbean Steve Jobs, Kempadoo has an unwavering commitment to the ethos and style that govern his Caribbean creation.





Paradise found: St. Kitts will no longer be under the radar thanks to luxurious Belle Mont Farm, set on a 400-acre property that brings farm-to-table cuisine to the Caribbean.



"I have become very defensive about my vision," he says. Which means you won't find a hamburger or steak on offer, since there is no local beef industry. (Kempadoo is also a lifelong vegetarian.) And there will no doubt be guests who want Alaskan king crab and Norwegian salmon, now and forever absent from the menu. But that is simply not the Kempadoo way.

For those who imagine that resort sustainability means open-air tents and backpacks, Belle Mont Farm offers a pleasant surprise. The guesthouses and villas are stocked with Frette linens and towels, four-poster beds, individual plunge pools and private verandas. Even the outdoor bathrooms are fitted with numerous luxuries, including claw-foot tubs.

The renowned architect Bill Bensley-who designed the Four Seasons on Koh Samui, among other luxury properties—brought a style to Belle Mont Farm that combines

the grandeur of stone and arched columns with a strong Caribbean influence, basing the villas on designs common in the West Indies.

With Belle Mont Farm, Kempadoo expects to make St. Kitts, which is lacking in high-end hotels (although the Park Hyatt recently broke ground on the other end of the island, at Christophe Harbour), a new destination for the Gulfstream set. And yes, a new private airstrip is in the works.

What won't be apparent to guests is that Kittitian Hill was a feat of clever financial engineering conceived by Kempadoo, who says he invested \$3.5 million of his own money in the project. The rest came from outside investors, mostly through the St. Kitts Citizenship by Investment Program. In exchange for the country's passport, foreigners were asked to make a minimum \$400,000 investment in government-approved projects. Kempadoo was the first developer in St. Kitts to use the program to fund a project. And to much

success: 85% of his investors came through it.

Leading up to the opening of Belle Mont Farm, Kempadoo went on a global road show. "I sold it off pictures of a bunch of grass," he recalls. Albeit grass that came with panoramic ocean views. With his stirring pitch about a sustainable hotel in the Caribbean—and the promise of a passport, particularly appealing to elites from developing countries in eastern Europe, Asia and the Middle East-Kempadoo sold \$100 million worth of preconstruction real estate.

As for whether Kittitian Hill represents the perfect synthesis of his social values, environmental principles and business acumen, Kempadoo is diplomatic.

"I would ultimately like the ownership structure to be returned to the people of St. Kitts," he says, equal parts capitalist and idealist. "Maybe through an IPO." 🗼

TRENDING

What the 65 million Forbes.com users are talking about. For a deeper dive go to **FORBESLIFE.COM**

PERSON

HARPER LEE

Fifty-five years after the release of To Kill a Mockingbird, the 88-year-old author will publish a sequel (featuring an adult Scout Finch) in July.

COMPANY CHEVROLET

At a base price of \$79,000 the 2015 Corvette Z06 delivers all of the performance-and interior luxury—of a car costing twice as much.

EATING INSECTS

With more restaurantsincluding the Tokyo outpost of Denmark's renowned Nomaserving dishes with crawlies, finding a bug on your plate may no longer be a reason to send back dinner.



FINAL THOUGHT

🕌 "Everybody in 15th-century Spain was wrong about where China was, and as a result. Columbus discovered Caribbean vacations."—P.J. O'ROURKE











WeatherTech*

Automotive Accessories





Accessories Available for

Acura · Audi · BMW · Buick · Cadillac · Chevrolet · Chrysler · Dodge · Ferrari · Ford · GMC · Honda · Hummer · Hyundai · Infiniti Isuzu · Jeep · Kia · Land Rover · Lexus · Lincoln · Maserati · Mazda · Mercedes-Benz · Mercury · Mini · Mitsubishi · Nissan Oldsmobile · Plymouth · Pontiac · Porsche · Saab · Saturn · Scion · Subaru · Suzuki · Toyota · Volkswagen · Volvo · and more!

Order Now: 800-441-6287



American Customers
WeatherTech.com



Canadian Customers WeatherTech.ca



European Customers WeatherTechEurope.com

© 2014 by MacNeil IP LLC

Discover 1

The best bullion silver investment you can hold.

Introducing the America the Beautiful five-ounce bullion coin, an official legal tender issue from the United States Mint. If you're not familiar with them you're not alone – as few as 20,000 are struck in a year, a figure overshadowed by the more than 44 million Silver Eagle coins released in 2014. Despite this exclusivity they're available at a similar premium over silver spot price, giving you an opportunity to see your coins gain collector value independent of silver spot price. And that collector value is nothing to sneeze at: America the Beautiful Silver coins show an average value 55% higher than their Silver Eagle counterparts. And less than two years after their original release, 2012's Hawaii coin is now worth 153% more than a similar investment in Silver Eagles! Any prudent investor will see the stunning advantage these giant 3-inch diameter coins can offer. Call now, and find out why Montgomery Chandler is a new kind of coin dealer.

representatives available 24 hours a day seven days a week

800-385-3303 www.montgomerychandler.com

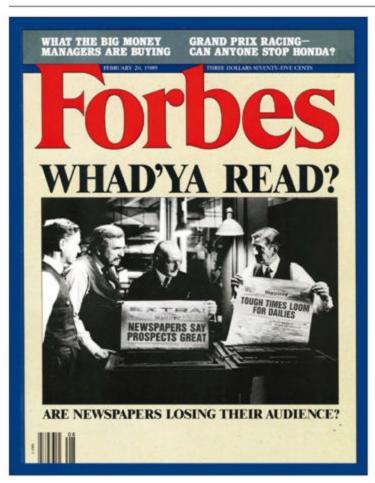
*Price dependent on order quantity, method of payment, and availability at current wholesale premiums. 10-day satisfaction guarantee on all orders. Call for complete offer guidelines. **Montgomery Chandler** 765 N. 5th Street, Silsbee, TX 77656



FINAL THOUGHT

"Enlightening editorial writers is even more difficult than educating educators." —MALCOLM FORBES





"Citizen Kane Meets Adam Smith: Long considered a monopoly or 'franchise' business where high profitability was all but guaranteed, newspaper publishers are beginning to hurt. Profit margins are stagnant, even for those daily newspapers that dominate their local markets. Media analyst John Morton says: 'The era when newspapers could count on double-digit volume increases in recovering economies is behind us. I don't think they'll ever be seen again.'"

-FROM THE FEB. 20. 1989 ISSUE OF FORBES

OTHER THOUGHTS FROM THAT ISSUE:

IBM-TV? "The line between 'television' and 'computers' is blurring every day. The new television/computers—if you will, telecomputers—will far exceed HDTV in presenting news and entertainment programs, as well as interactive games, educational materials and commercial opportunities for active users."

BIRD ... **PLANE** ... **SUPERNET!** "The sudden proliferation of microcomputers, now almost 20 million of them, is precipitating the interconnection of computers and proprietary networks into 'supernets'—networks too large and diffuse to be controlled by any single company."

ON NEWSPAPERS

"A good newspaper, I suppose, is a nation talking to itself."

-ARTHUR MILLER

"I read the newspapers avidly. It is my one form of continuous fiction."

-ANEURIN BEVAN

"I regard the fact that I don't write for the newspapers as a source of happiness in my life. My purse suffers, but my conscience is glad of it."

-GUSTAVE FLAUBERT

"A nation that is afraid to let its people judge the truth and falsehood in an open market is a nation that is afraid of its people."

-JOHN F. KENNEDY

"News is what somebody somewhere wants to suppress. All the rest is advertising."

-LORD NORTHCLIFFE

"Once a newspaper touches a story, the facts are lost forever, even to the protagonists."

-NORMAN MAILER

"Light in a messenger's eyes brings joy to the heart, and good news gives health to the bones."

-PROVERBS 15:30

"Four hostile newspapers are more to be feared than a thousand bayonets."

-NAPOLEON

"News travels fast in places where nothing much ever happens."

-CHARLES BUKOWSKI

"Truth itself becomes suspicious by being put into that polluted vehicle."

-THOMAS JEFFERSON





